The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 47. NOVEMBER 25, 1933. VOL. XIII.

Papers Presented to Congress

No. 7.—FRACTURES AND DISLOCATIONS IN SMALL ANIMALS*

J. McCUNN, M.R.C.V.S., M.R.C.S., L.R.C.P.
ROYAL VETERINARY COLLEGE

The subject of this paper has, in the past, been sadly neglected. The literature on this important question is to all intents and purposes negligible. It has not received its proper recognition at the hands of the Veterinary Profession. This is probably due to the fact that nature, the great healer, seems to be at her best when dealing with dumb animals. Her efforts fail in remarkably few cases. It may be that economies are the ruling factor, and that those cases which do not follow a normal course are dealt with in a manner satisfactory to all concerned by the aid of those two allies of the surgeon—death and amputation. Nowadays, skeletal surgery has assumed an importance which few of us could have anticipated only a few years ago. This change is undoubtedly due to three factors:—

(1) The increased interest of the public in their pets, and the numerical increase of the latter.

(2) The enhanced value of many of these animals.

(3) The general advance in surgery following the immunity from disaster we now possess in modern aseptic and antiseptic methods.

My subject is a very extensive one. Its title might justly be "Orthopædic Surgery of the Smaller Animals."

It is always wise to define the matter under discussion:—

A FRACTURE may be defined as the sudden destruction of the continuity of bone, except when performed by a surgical cutting instrument.

A DISLOCATION is a permanent, abnormal, partial or total displacement of the articular surfaces of the bones entering into the formation of a joint.

I will attempt to deal with this paper in a systematic manner. Therefore, I propose to approach my subject at first in general terms. Bone surgery, like all crafts, possesses much common ground. From these basic facts I can later pass to more specialised matters.

I have essayed to classify, for an old axiom says: "To classify is to simplify."

General classification of fractures.

(1) Incomplete.
(2) Complete.
(3) Compound.
(4) Pathological or spontaneous.
(5) Fracture dislocations.
(6) Simple.

INCOMPLETE FRACTURES

(1) Fissure: a simple split or crack of limited extent.

(2) Greenstick: this involves part of the thickness of a long bone *plus* a bending of the unbroken part. It is characteristic of the young animals, for their bones are still resilient, due to their organic content. Often only bending or distortion is observed.

(3) Depressed: a crushing in of part of the thickness of a bone, associated commonly with flat bones. The best examples are to be found in the bones of the skull.

(4) The separation of a splinter, an epiphysis or an apophysis. This may be due to internal or external violence. The apophysial type seen in young animals is a good example resulting from internal violence. An apophysis is often detached by violent and sudden muscle strain before its union by ossification is complete.

COMPLETE FRACTURES

These are classified according to their site, shape or mode of production.

(1) Site: as neck, shaft, condyle, etc.

(2) Direction or shape: longitudinal, transverse, oblique, spiral, T-shape, V-shape, etc.

(3) Relation to joints: intra-articular, intra-capsular, extra-capsular.

(4) Complicated: is one in which grave damage is done to surrounding tissues, muscles, blood vessels or nerves.

(5) Various: these are described by their extent, the bones involved, multiple, etc., or by their type—comminuted, crushed, impacted, etc.

COMPOUND FRACTURES

A fracture is compound when, as a result of the damage, the injured bone is in communication with the exterior through a wound in the overlying parts.

PATHOLOGICAL OR SPONTANEOUS

This fracture is the result of some pre-existing diseased condition. It is associated with osteo-

* Presented at the Fifty-first Annual Congress of the National Veterinary Medical Association of Great Britain and Ireland, Llandudno, September, 1933.

DEPT. OF VET. MEDICINE

porosis, osteomalacia, osteosarcoma, etc. The occurrence of a fracture is sometimes the first indication of existing disease.

Fracture Dislocations

The injury which produces a fracture may also be responsible for a dislocation. These cases are particularly associated with the hip joint and the pelvis.

Simple Fractures

Comprise all those which do not fall into the above categories.

The Etiology of Fractures

Most fractures are of simple origin. They are undoubtedly the result of violence. This violence may be external or internal. There are, however, a number of predisposing causes which must be considered. Some of these factors are found in the shape, position, structure and formation of the bones. A long bone is more exposed to violence than a short bone. Its length is its weakness. The fact that long bones are limb- or weight-carrying bones is not to be neglected. Texture plays a part. Short bones and the spongy ends of long bones are highly resistant to serious damage. Those bones whose function is to carry weight or protect delicate parts are exceptionally exposed to injury.

Age is an important feature. Immature bones in which ossification is incomplete are very liable to injury, examples of which are seen in greenstick and epiphysial fractures. On the other hand, old bones, due to senile atrophy and the loss of much of their organic content, tend to become brittle.

To what extent heredity plays a part is not fully understood, as far as my knowledge goes, in veterinary cases. From the human point of view it seems to be established that there is such a thing as an inherited predisposition—I have seen evidence of this in both the young and the aged.

Environment and diet play no small part, in the same way as they do in constitutional diseases.

Work or occupation contribute—the racing or coursing dog being particularly prone to bone injury.

Immediate Causes of Fractures.

These can be grouped as follows:—

(1) External violence.
(2) Internal violence.
(3) Pre-existing disease.

(1) *External Violence.*—This needs little amplification, except that this violence may be:—

(*a*) Direct;
(*b*) Indirect;

Violence is direct when the lesion occurs at the point at which the blow is received.

Indirect Violence.—In this case the lesion occurs at a point some distance from the point of application of the blow, good examples being found in many of the fractures of the axial skeleton. C. Elphick reported a typical case on page 576, *Veterinary Record*, 1927.

(2) *Internal Violence.*—These fractures follow the excessive and sudden contraction of parts of the muscular system. The quadriceps are sometimes responsible for fracture of the patella.

(3) *Pre-existing Disease.*—Fractures associated with this condition may be precipitated by direct or indirect violence. Good examples are the epiphysial fractures associated with "rickets" in young dogs.

Symptoms of Fractures

These may be local or general.

There is usually a history of an accident followed by pain, which is increased on attempted movement.

The local signs may be classified as:—

(1) Pain.
(2) Swelling and bruising.
(3) Abnormal mobility.
(4) Loss of function.
(5) Deformity.
(6) Crepitus.

One of the first symptoms of fracture is the sudden onset of pain. This pain varies in degree. It may at first appear to be general; later it localises and careful search usually indicates its site. Pain is most intense over the seat of fracture. When the effects of fright and fear have passed away this localisation of pain may be the only definite symptom to be observed.

Few fractures occur without damage to the surrounding tissues. Muscles, vessels and nerves are frequently implicated, consequently heat and swelling are to be observed. The swelling is the result of an effusion of serum or blood.

Alterations in conformation and action are obvious. These conditions are automatically followed by interference with function. An abnormal degree of mobility is in itself significant of fracture.

In the past much stress has been laid upon the presence or absence of crepitus. Crepitus is a very illusive symptom. It may be present and indicate a "teno-synovitis" or even an arthritis. I have often observed extensive fractures which did not give the slightest sign of crepitus. This may be due to the fact that portions of the surrounding tissues or the products of hæmorrhage are interposed between the fractured fragments.

To my mind an abnormal degree of mobility is probably more significant of fracture than the presence or absence of crepitus.

General or Constitutional Symptoms.

These may be classified as:—

(1) Primary or immediate.
(2) Secondary.

Immediate effects are those of hæmorrhage and shock.

Secondary effects are those generally associated with fever. There is often an aseptic traumatic fever which occurs from 24 to 60 hours after the injury. This fever is supposed to be due to the absorption of fibrin ferment liberated from or absorbed from the effused blood. Incidentally, I may say that rest is all that is required. If, however, the fever is associated with sepsis further measures are necessary, depending upon the virulence and extent and type of infection.

It is said that fat embolism can follow a fracture. I have yet to see such a case.

Repair of a Fracture.

Time does not permit of a description of this phenomenon. I think that it may be taken for granted that all present are familiar with the classical account. This account fulfils all our requirements, no matter what type of fracture is dealt with.

Complications of Fractures

We can now deal with some of the common complications which are associated with the repair of bone. I will attempt to classify:—

(1) Hæmorrhage.
(2) Infections—septicæmia and pyæmia.
(3) Gangrene and necrosis, including sinus and sequestrum formation.
(4) Callus abnormalities.
(5) Joint affections.
(6) Muscle and nerve lesions.
(7) Non-union and faulty union.

(1) *Hæmorrhage* may be primary or secondary. Its importance is proportionate to its degree. It may be advantageous and by its presence keep the fragments in something like apposition. Little can be done to relieve it except in cases of compound fractures. One must wait upon nature. Excessive hæmorrhage may lead to a separation of fragments. This is especially noticed in fractures of the femur involving the femoral artery. When the blood becomes organised it is quite possible that the bone cells will be unable to penetrate the resulting fibrous tissue, and then mal-union results. The hope is that such hæmorrhage as does occur will not be excessive.

(2) *Infection.*—This is fortunately generally local. It is associated with compound fractures. In my experience osteo-myelitis, pyæmia, and septicæmia, are rare complications.

(3) *Necrosis and gangrene* may result from the simplest of fractures. They may even be the result of measures adopted in treatment. The potent factor is interference with the circulation.

(4) *Callus Abnormalities.*—Callus formation is a normal procedure of repair. There are, however, two conditions which may be considered abnormal:—

(*a*) Exuberant or excessive callus.
(*b*) Painful callus.

(*a*) Exuberant or Excessive Callus.

An excess of callus formation may lead to interference with surrounding tissues. This interference may implicate muscles, circulation, nerve supply or the free movement of a joint. Necrosis is possible as a sequel.

(*b*) Painful Callus.

Every callus is painful at some time or other. The persistence of pain, however, is pathological. It points to the existence of inflammatory reaction, suppuration, to pressure upon a nerve, or to a sequestrum. It is often difficult to decide if nerve pressure results from callus or from the contraction of cicatricial tissue.

(5) *Joint Affections.*—Joints which have been immobile for any length of time tend to become stiff. This may be the result of inflammatory changes, but, fortunately, in the majority of cases it is simply due to a want of movement, to adhesions affecting the synovial fringes or to alterations in the quantity or quality of the synovial fluid. If inflammation is the cause it is essential to rest the part until the active process has settled. If the stiffness is non-inflammatory and follows normal inaction there is little to fear. Simple measures, including massage and movement, will soon remedy matters.

(6) *Muscle and Nerve Lesions.*—Following impaired mobility there is the well-known ischæmic atrophy of both muscles and nerves. This often leads to deformity of contour and gait. The uncomplicated atrophy of inaction need cause little anxiety. It invariably resolves under massage if one makes full use of both active and passive methods.

(7) *Non-Union and Faulty Union. Pseudarthrosis.*—If after a reasonable lapse of time there is still abnormal mobility it can be said that pseudarthrosis exists. This condition is fortunately rare.

Pseudarthrosis may be represented by:—

(*a*) Absolute non-union in which atrophic changes occur in the fragmented ends.
(*b*) Fibrous union, partial or complete.
(*c*) False joint formation, the fragments becoming eburnated with or without a covering of articular cartilage. Often a capsule may be formed from the surrounding tissues.

A case illustrating the formation of a false joint was reported by J. T. Edwards in the *Veterinary Record*, 1932, p. 362. The neck of the femur was the site of the lesion.

Many of these false joints are quite useful. If they do not interfere with the functions or comfort of the patient they are best left alone.

In Edwards' case function was almost perfect.

The causes of pseudarthrosis may be classified as follows:—

(1) The time factor.
(2) Persistence of fibrous tissue.
(3) Interposition of surrounding tissue.

(4) Deviation from correct alignment.
(5) Inefficient splinting.
(6) Interference with blood supply.
(7) Presence of disease.
(8) Vicious union.
(9) Age.

(1) *Time Factor.*—The majority of cases are the direct result of impatience and of the supposition that we can treat all cases alike. They are due to a too precipitate removal of support. The premature use of an unsupported bone may easily lead to a return of abnormal mobility. All cases do not run according to rule. Repair does not conform to exact time limits or methods. In the great majority of cases resolution will ensue if restraint be applied again and patience exercised.

(2) *The Persistence of Fibrous Tissue.*—In this case many factors are at work. The tissue may be so dense that bone cells cannot penetrate it. The width of the gap between the fragments, leading to an excess of fibrous tissue formation, may be so great that new bone cannot bridge it. In some cases the rarefying osteoclasts swamp the osteoblasts and absorption of bone occurs, leading to alterations in the contour of the fragments.

(3) *Interposition of Surrounding Tissue.*—The interposition of periosteum, muscle, fragments of bone or other tissue frequently seriously interferes with callus formation.

(4) *Deviation from Correct Alignment.*—This means alterations in structure in accordance with Wolff's law. Wolff's law is as follows:—

> "Nature makes attempts to adapt parts to deviated lines of muscular stress or to the deviated lines of the force of gravity."

I am of the opinion that all the tissues or fluids of the animal body have a tendency to grow or flow in their normal direction under normal conditions or those approaching normal. Tissues which inadvertently occupy unnatural positions show a tendency to be deprived of their natural functions of growth and repair. It is easy to visualise how the softer and rapidly-growing tissues can often proliferate at the expense of the hard and slow-growing tissues if alignment and apposition are manifestly incorrect.

(5) *Inefficient Splinting.*—The object of a splint is to reduce mobility to a minimum and to keep the fragments at rest and in apposition. A golden rule in the repair of any lesion of any tissue is that it must be kept at rest. If the site is one where efficient splinting cannot be satisfactorily applied it is better to let nature work unburdened.

(6) *Interference with Blood Supply.*—In this category we can also include nerve supply. It is easy to understand that if a tissue is to regenerate its trophic supply must be of the best.

(7) *Presence of Disease.*—The existence of general disease—rickets, debility; calcium, phosphate or magnesium deficiency, so interferes with nutrition of the part as to make union almost impossible. In this group we must also include vitamin deficiency, particularly that of vitamin E. Vitamin E, according to some modern observers, may be the "King Pin" of pseudarthrosis.

(8) *Vicious Union.*—This is the term applied to a repaired fracture when the resulting consolidation is in such a bad position or alignment as to produce deformity or partial or total loss of function. In many of these cases there is an absence of complete consolidation and a false joint results. All varieties of pseudarthrosis may be met with. Treatment, other than surgical, is of little use. The essentials are that the union must be broken by open or closed methods and reset in a corrected position.

(9) *Age.*—Many observers deny that age has any influence upon the repair of a fracture. Old bones and tissues are not so active in growth or repair as are young ones. Inefficient or too short a duration of splinting may be a contributory cause in old animals. One is justified in supposing that reparative changes are slower in old bones.

The General Treatment of Fractures

I will now deal with the general treatment of fractures and later I hope to put before you some of my own special or adopted methods. The advent of X-rays, a more critical clientèle, and the work of those two modern pioneers in orthopædic surgery, Sir Arbuthnot Lane and Sir Robert Jones, have placed bone surgery in the front rank. X-rays have given us new views of the injured part. We can see the bones. We can watch and, to some extent, control repair. It is difficult to take an interest in something which you cannot see. I do not condemn traditional treatments; my object is to make use of the best of the old and of the new.

General principles of treatment can be classified. Special methods employed in selected cases are really branches of this classification of principles.

A classification of the principles of treatment would be as follows:—

(1) Accurate diagnosis.
(2) Restoration to normal position.
(3) Immobilisation.
(4) Extension.
(5) Operative.

(1) *Accurate diagnosis* of site, type of fracture and extent of local or general injury is essential. One cannot exaggerate the value of X-rays. One can manage without their aid, but it is unlikely that any sane person would neglect their aid if such was available. It is important to know which type of fracture is being dealt with in order to guide the treatment and prognosis. The extent of associated injury is all important. It is often advisable to wait until such complications

as swelling, œdema, and hæmorrhage, have settled or resolved before we essay to set a fracture.

(2) *Restoration to Normal Position.*—Having dealt with associated conditions, the next essential is to restore the fractured parts to their normal position. This is not always possible, but every effort should be made, for it is well known that ill effects may follow incorrect alignment. In restoring the parts to normal position the value of extension should be strongly emphasised.

(3) *Immobilisation* is necessary to retain correct position. To do this we make use of permanent dressings or splints. Many are the varieties of material used, the essential points being that we must prevent displacement by the animal itself or by external forces.

(4) *Extension.*—A sufficient degree of extension is an absolute necessity in order to get good results. This maxim particularly applies to limb bones. In dealing with some special fractures I will illustrate my methods.

(5) *Surgical or Operative.*—Under this heading are included the treatment of:—

(*a*) compound fractures;
(*b*) pseudarthrosis;
(*c*) amputations.

(*a*) Compound Fractures.—In dealing with these one must make use of all the aids at one's command in cleaning and rendering the site aseptic. Success largely depends upon the thoroughness of the preliminary treatment. The mechanical aid of flushing and the use of such potent antiseptics as BIPP and glycerine cannot be too highly valued. Loose pieces of bone should be removed, but do not dig for them. Fractured fragments soon join up with the parent bones if asepsis is maintained. Provide adequate drainage by means of strips of rubber or tube. Try and promote healing of the superficial parts. If one can close the skin and muscle wounds by healing process the battle is half won.

(*b*) Pseudarthrosis.—The treatment of this condition may be very simple, or very difficult, or it may be impossible. It is essential that the way be cleared for the osteoblasts to work unhindered. If the intervening tissue is not too dense, simple measures are often successful. The part should be massaged several times daily and during the intervals kept in a fixed splint. Percussion over the area is useful. Thomas's method makes use of a modified Bier's congestion and percussion. Rubber ligatures are applied above and below the area and light percussion applied directly over the lesion. If this fails union may sometimes be obtained by surgically freshening the ends of the bone and removing excess of fibrous tissue. Another method is to stimulate the bone by irritation. Drilling or pyropuncture fulfils these ends. My colleague, Mr. Holmes, had one very good case involving the tibia, which reacted successfully to the latter method. Mechanical aids, such as wiring and plating, may be useful, but the findings of Hey Groves, as published in the *British Medical Journal,* p. 1103, 1912, favour the use of intramedullary pegs. His findings were in favour of magnesium pegs. He found that they were soon absorbed and good callus produced. These experiments were conducted upon dogs and cats. One can make use of intramedullary pegs of bone, or grafts slotted into the ends, or even bone splints applied directly to the bone. The relative value of autogenous or freshly sterilised foreign bone is debatable. In each case these grafts are absorbed by the parent bone. Good use can often be made of individual fragments in this way. Ambulatory splints are often serviceable, the slight degree of irritation thrown on weight-bearing surfaces being often sufficient to promote healing.

(*c*) Amputation.—Amputation may be called the refuge of the destitute. In advising this course our option is based upon three factors:—

(1) The extent of the injury.
(2) The state of the patient.
(3) The usefulness of the limb if saved.

The surgeon on the spot is the only one who can decide. No hard and fast rules can be laid down other than Teal's dictum that one flap should be almost the square of the other in order to provide sufficient covering for the stump. If possible, a decision should not be delayed. Amputation is a major operation and it should be performed, if possible, while the patient's resistance is at a high level.

A point of great interest is this. Why is hæmorrhage almost negligible in the case of amputations performed in the cat?

. . . . .

DISLOCATIONS

In discussing dislocation I intend to deal at first with those points which are common to all and from this groundwork to follow later with an account of some of the special features of individual dislocations.

Nomenclature.—As a general rule, it is the distal member of the joint which is said to be dislocated. Thus, when one speaks of a dislocation of the hip joint one indicates that the femur is the offender. Terms such as dorsal, ventral, etc., can be usefully added in order to indicate the position of the abnormally-placed bone.

When the opposed articular surfaces are completely separated the term " complete " is added.

Sub-luxations are partial or incomplete lesions.

A compound dislocation is one in which communication is established between the interior of a joint and the air.

A complicated dislocation is one in which there are other injuries which seriously affect treatment and prognosis.

A fracture dislocation is one complicated by fracture of one or more members of the joint.

Bilateral dislocations.—This term defines those cases in which the corresponding joints on both sides of the mid-line of the body are affected.

Multiple dislocation is the term used when two or more joints are affected.

Classification of Dislocations.

(1) Congenital.
(2) Acquired or traumatic.
(3) Pathological.

(1) Congenital lesions are due to developmental errors. They are present at birth or they occur shortly afterwards. They probably result from the maintenance of intra-uterine malpositions. An hereditary predisposition is said to exist.

(2) Acquired or Traumatic are the result of violence, which may be direct or indirect. They may be divided further into:—

(*a*) External—the result of a blow.
(*b*) Internal—the result of violence and sudden muscle contractions, a good example being those associated with the patella.

(3) Pathological—sometimes called spontaneous—occur generally without recognisable violence, the tissues comprising the joint being so altered by disease as to facilitate displacement. An example of this type is occasionally met with in the shoulder joint, associated with osteo-sarcoma of the upper end of the humerus. I have recently seen such a case in a twelve-year-old Red Setter.

The Etiology of Dislocations

The causes may be divided into:—

(1) Predisposing.
(2) Determining or immediate.

Predisposing Causes.

(*a*) Conformation: diminishing areas of contact, shallow fossæ, etc.
(*b*) Conditions involving strain and so leading to rupture of ligaments.
(*c*) Slack or weak ligaments.
(*d*) Disease: as distention by effusion, softening of tissues, erosion of bone, etc.

Immediate causes are those of sudden internal or external violence. These dislocations are generally produced when the limit of movement of a joint in any one direction has been reached. Typical examples are those associated with the head of the femur and the scaphoid bone of the hock.

Complications of Dislocations.

These may be summed up by the statement: "Injuries to associated parts." Few dislocations occur without damage to synovial membranes or ligaments. Muscles are stretched and sometimes torn. Bones may be fractured; a good example of this complication is an associated fracture of the rim of the acetabulum. Blood vessels and nerves are sometimes involved, particularly so in spinal lesions. If a dislocation is uncomplicated and reduction immediate, resolution can be expected. In complicated cases and also in those in which reduction is delayed, alterations occur in the surrounding tissues. Adhesions and consolidation occur which fix the bone in a new and abnormal position. Articular cavities rapidly fill with blood and new fibrous tissue. Ossifying processes tend to extend. In some cases ossification may be beneficial, as, for instance, in lesions of the lower row of tarsal bones. The final result of these changes is that the affected bone or bones may become fixed in an abnormal position with no chance of a return to normal.

Symptoms of Dislocation

(1) Pain, swelling and bruising.
(2) Deformity.
(3) Loss of function, *i.e.*, limitation of range of movement.

(1) Pain, swelling and bruising follow injuries to the softer tissues.

(2) Deformity may be recognised by:—

(*a*) appearance and by palpation of the injured part;
(*b*) a systematic examination of the bony points and by measurements.

(3) Loss of function may imply limitation of movement, which is fairly easy to recognise on attempting passive movements of the part. Often characteristic attitudes are adopted as, for instance, the backward and inwardly twisted leg characteristic of an antero-superior dislocation of the femur.

Treatment

To ensure success reduce early.

Make full use of:—

(1) Manipulation, *i.e.*, attempt to make the bone retrace the course by which it left its proper position. Before attempting manipulation it is essential that the spasmodic tension of opposing muscles should be broken down. This is best effected by massage. It is practically useless to attempt reduction of the femur if the adductors of the thigh are in a state of spasm.

(2) Extension. This aid is used to overcome muscle contraction. Half measures are useless and a general anæsthetic should, if possible, be given.

(3) Massage and movement. After successful reduction, the case should be left at rest for two or three days, until the acute soreness has diminished. Follow with active and passive massage, by which joints are kept supple and adhesions controlled.

Delayed Reduction.—If the bones have become accommodated to their new positions, and if there are good functional movements, it is best to leave well alone. If movement is restricted and disability or pain persists, an attempt should be made to remedy matters. Open operation is often advised, but I do not favour this course until all other so-called closed methods have failed.

. . . . .

SOME COMMON FRACTURES

Fracture of the Mandible.

This is fairly common in dogs. It is generally the result of direct violence. It may follow accidents or the extraction of teeth, particularly canine teeth. The usual situation is at the symphysis, but it may occur at the canine tooth or in the ascending ramus near the neck. The signs are a drooping of the lower jaw, interference with deglutition, irregularities in the dental line, abnormal mobility and crepitus.

Treatment in the majority of cases is simple. Immobilise the part by using a bandage or other material, after the manner of a muzzle. The symphysial fracture is one which readily lends itself to mechanical fixation by wiring.

Fracture of the Superior Maxilla.

This is uncommon. Its occurrence leads one to suspect "rubber jaw." The treatment in uncomplicated cases follows the lines laid down for those of the mandible.

Fractures of the Ribs and Sternum.

These are fortunately relatively rare. In the small animals these bones are very elastic. They possess great resilience. If a fracture occurs it is generally at the neck of the rib or at the costo-chondral junction. It is rare to find the viscera damaged. Diagnosis rests upon history, pain and crepitus on manipulation and deformity. We can do little as regards treatment. An attempt should be made to manipulate the parts into good position and to so retain them, making use of adhesive strapping or plaster bandages.

Scapula.

Not common; the blade rarely suffers. The neck, acromion and coracoid processes are occasionally affected. Deformity and localised pain are obvious. The affected limb is held in the "radial paralysis" position. Treatment: It is probably best to do nothing. If this is not desirable, attempts should be made the fix the shoulder joint in the extended position with the limb slightly flexed at the elbow. Plaster may be used, but in my opinion these cases are ideal ones for a Thomas' Splint. Whatever splinting is used it should be removable in order that daily massage may be practised.

Humerus.

The following fractures are commonly met with:—

1, Neck; 2, Epiphysial; 3, Shaft; 4, Condylar.

Neck and Upper Epiphysial.—This is rare and always the result of direct violence. There is rarely any displacement, and crepitus is seldom present. The essential signs are pain and loss of function. Mobility is decreased. X-ray is essential for diagnosis. Treatment: As the alignment is generally good, do as little as possible; rest and massage are all that is required.

Shaft.—Fractures in this position are generally spinal in type, involving the musculo-spinal groove. Radial paralysis is a common complication due to pressure of exudates on the musculo-spinal nerve. Diagnosis generally easy, swelling, pain and crepitus being evident. Treatment is largely a matter of extension. It is essential that the elbow joint be extended. The ideal splint is the Thomas' type.

Lower Epiphysial.—Relatively common. Displacement is almost inevitable, the lower fragment being pulled and pressed backwards by the Brachialis anticus muscle. It is essential to overcome the action of this muscle, therefore extension and slight inward rotation are the essential features in reduction. Anæsthesia is necessary. Splints must be utilised and again the Thomas' type is the best, because of its extension facilities.

Condylar.—The external condyle is most frequently involved, displacement being forwards. Reduction is relatively easy. The value of splints is very questionable. In most cases I prefer to rely upon massage. By maintaining a degree of movement in the elbow we can, to some extent, avoid the complication of joint adhesions.

Radius and Ulna.

—The radius is frequently fractured in the middle of its shaft and at the epiphysis. It is rare to meet with an upper epiphysial fracture. Fractures of the shaft and lower epiphysis are common. In fractures of the shaft, much depends upon the soundness of the ulna. If the ulna is intact, displacement is usually negligible; the ulna functions as an internal splint. To preserve alignment, splints are necessary. Extension is essential to ensure good results. Splints should be removable in order that massage may be frequently carried out. The splintings I prefer are Gooch's, poro-plastic felt, or a Thomas' wire appliance. In the radius, probably more than in any other bone, it is essential to preserve correct alignment and to limit callus formation. The radius should normally rotate slightly upon the ulna and almost any degree of the above complications may interfere with this motion. Ambulatory exercises are useful, and these should be started as soon as the repair is established. Do not wait for complete ossification. A slight degree of movement and the concussion exerted upon the fractured fragments accelerates firm union and limits exuberant callus formation. It is essential, however, that the weight-bearing functions of the part should be limited. The latter condition is attained by the use of supporting leggings.

Fractures of the ulna, involving the shaft and the lower end, are treated after the manner of those of the radius. Lesions involving the olecranon process, however, call for a little variation in method. The essential of treatment is to limit the pull of the triceps. This can be done by fixing the leg, with the elbow, in the completely extended position.

In all cases involving the radius and ulna I do not like to immobilise completely for more

than 14 days, but I do like to provide massage as soon as possible.

Fractures of the Carpus and Tarsus.

Fractures involving these joints are rare. It is fortunate also that the articular area is so great that loss of some of this area is easily compensated for. In the case of the hock, complete fusion of all the bones and joints below the tibio-astragaloid joint seems to cause very little inconvenience.

The pisiform is the most frequently injured bone of the carpus; in the case of the hock the scaphoid and the os calcis usually suffer. Healing in all cases appears to be rapid. The pisiform is best treated with the carpus maintained in a slightly flexed position; the calcis with the hock completely extended and the scaphoid with the joint flexed. The calcis lends itself to wiring or pegging, an example of which is to be seen among the X-ray photographs. In all cases massage and movement of the joint is essential.

Digits and Phalanges.

Metatarsal and metacarpal lesions are common. These bones are so closely articulated that splinting is unnecessary. Massage and movement is helpful, the only serious complications being excessive callus formation, causing interference with the extensor and flexor tendons.

Phalanges.

In the case of the first and second phalanges the foot should be immobilised and weight-bearing abolished. Support can be given by rolls of cotton-wool or gauze packed between the toes. Good results can be anticipated even in comminuted fractures. If the terminal phalanx is involved there is no doubt that amputation is the correct procedure.

Femur.

There is no question that the treatment of fractures of the femur gives rise to a great deal of discussion. Many and diverse are the views as to procedure. Methods range from no treatment to the use of the most elaborate splints, together with plating or wiring. The femur is fortunately completely surrounded by muscles and in simple fractures there is no doubt that good results do follow a non-interference policy. I do not like plasters or charges, and the only splint which I consider of any use is the Thomas' type. Displacement should be reduced if at all possible, and this cannot be satisfactorily attained without an anæsthetic. Extension is an absolute necessity, as shortening is the most serious sequel. When the splints have been removed I find it advantageous to weight the limb in the region of the hock. In one of my cases—a racing greyhound bitch—which suffered a comminuted fracture of the femur and which was able to resume racing successfully, a ¼-lb. weight was carried for six weeks. This weight may be suspended from a metal pin driven through the lower end of the femur.

Plating, wiring and the use of intra-medullary pegs are to be avoided if possible. If they are absolutely necessary there is no doubt that the latter two mechanical aids are the most successful.

Patella.

Two varieties of fracture are met with in this bone. They are both the result of internal violence following sudden contraction of the quadriceps extensor cruris group of muscles. The upper or lower end is often separated from the body of the bone, the detached portion remaining fixed to the muscle tendon or the patellar ligament. Occasionally the bone is literally broken into two parts. These cases do well, as a rule, all that is necessary being to fix the stifle joint in the extended position. If considered advisable, it is a simple job to suture, using wire or kangaroo tendon. Massage should be applied as soon as possible.

Tibia and Fibula.

Although these bones are probably the most exposed of any in the body, fractures are relatively rare. Epiphysial and shaft lesions are dealt with in the same way as those involving the radius and ulna. Owing to the slight twist in the tibia, a spiral fracture of the shaft is the common lesion. Occasionally the spine and crest are injured, and these lesions give rise to more anxiety than those of the shaft. It is difficult to immobilise a detached spine. Articular surfaces may develop and the injury generally involves the crucial ligaments. The only treatment that I can advise is massage, for if fixation is practised one cannot control the processes of ossification.

On one occasion I have seen a vertical split of the tibia. This was, however, only discovered on X-ray examination and, as the position was good, expectant treatment yielded excellent results.

The distal end of the tibia is often the seat of a V-shaped fracture radiating from the central articular ridge. These injuries are generally the result of internal violence. They are very intractable, for complete immobilisation is necessary, and this often leads to involvement of the astragalus articular surface and a resulting ankylosis.

Fractures of the Spine.

All varieties of fracture are met with, ranging from those of the tip of one of the processes to a crushed fracture of the body. Signs evinced are those of concussion, irregularity, localised or referred pain, and, in gross cases, paraplegia. Damage to the cord is irremediable and it is possible to prognose on this alone, for the future prospects largely depend upon what is the degree of injury to the cord at the time of the accident.

Paraplegia is usually present below the site of injury, and some help can be obtained in localising the injury, for just anterior to the lesion there is generally a zone of intense hyperæsthesia.

Treatment consists of absolute rest and fixation, where possible. In the neck, a plaster bandage or collar may, with advantage, be applied. An X-ray examination is of the utmost value.

Pelvic Fractures.

These vary from those of simple cracks of the symphysis to complete crushing. Fortunately the graver type are rare. Common sites of injury are the acetabulum, the shaft of the ilium, the symphysis and the tuber ischii. Associated injuries to the pelvic contents are not usual.

Diagnosis is made by a consideration of the symmetrical bony points *plus* rectal examination.

There is little that can be done in the way of treatment other than rest until union occurs. In the early stages of union it is often possible to attempt moulding.

SOME COMMON DISLOCATIONS

Elbow, Phalanges, Hip, Patella and Hock:

Elbow.—Dislocations of the elbow are frequent. They are always due to external violence. They are easily reduced if unaccompanied by fracture. After reduction, the elbow should be fixed in the flexed position for a week or ten days, after which massage should be applied. If there are fracture complications a stiff joint is almost certain to ensue.

Phalanges.—Very common, invariably accompanied by rupture of one of the lateral ligaments. They are accompanied by considerable pain and deformity. Especially is this so on manipulation. In the case of the terminal phalanx there is no doubt that amputation is the ideal treatment. In the case of the first inter-phalangeal joint, wiring gives very good results. In some cases I have had resource to the actual cautery in the hope of promoting ankylosis. An ankylosed inter-phalangeal joint appears to be almost as useful as a normal one.

Patella.—This bone is frequently dislocated, especially in Bulldogs and Pekes. It is easily reduced, but it is with difficulty retained in its normal position. The common dislocation is an internal one. It causes little trouble and the function of the stifle joint may be quite unimpaired even when the patella rests upon the internal condyle of the femur. In intractable cases open operation is useful. Use kangaroo tendon and, by sutures, shorten or mend the injured lateral ligament.

Hip.—This is a frequent injury since the advent of motor traffic. There are three common types: (1) Dorsal-anterior; (2) Dorsal-posterior; and (3) Ventral.

Diagnosis is relatively easy, although it is not always possible to confirm or disprove a co-existing fracture. Points in diagnosis are:—

(1) A comparison of the distance between the great trochanter and the tuber ischii.

(2) Prominence of great trochanter.

(3) Persistence of this prominence when the femur is abducted.

(4) The characteristic internal twist of the leg over and behind its fellow.

(5) A comparison of the length of the legs.

The main aid in reduction is to break down the spasm of the adductors of the thigh. An accurate diagnosis of position should be made. X-rays are almost essential. Try and make the head of the femur retrace its course, and to do this make full use of extension under an anæsthetic. When reduced, leave alone. Support is unnecessary.

Scaphoid.—This is always an anterior dislocation. It follows rupture of the interosseus ligaments. It is easily reduced by the thumb. It is difficult to retain it in position. Good results follow simple massage and the resulting consolidation of the lower rows of tarsal bones. This is the commonest dislocation of the racing greyhound. It always happens when they are at a full gallop. Prognosis is good.

DISLOCATIONS OF THE SPINE

These are the result of excessive external violence. The symptoms resemble those of fracture. The spinal cord rarely escapes injury. In lesions of the lumbar and dorsal regions little or nothing can be done in the way of treatment. Injuries involving the cervical or coccygeal vertebræ are by no means hopeless. Coccygeal dislocations should be reduced and immobilised in the correct position until ankylosis has repaired the lesion. In the cervical region dislocations of the atlanto-axial and the occipito-atlantal articulations are by no means rare. The head and the neck are carried in a position resembling torticollis, and great pain is evinced if the occipital region is lightly tapped. I have seen a case in which the odontoid process lay under the ring of the atlas. The pain symptom was very marked and there was an inco-ordination of the limbs. Reduction should always be attempted if the peripheral reflexes are good. Strenuous extension under a general anæsthetic is necessary. In two cases which have been under my care definite clicks indicated successful reduction. When reduction has been accomplished the neck should be enclosed in a plaster collar extending from the base of the neck to the occiput.

Prognosis can be based upon the conduct of the patient when it recovers from the anæsthetic. If there is not a serious cord injury it is surprising how quickly normal stance and gait are assumed.

At this point I must bring my long and no doubt boring paper to a conclusion. I would like to describe to you some of my methods and appliances, but this can be done very well during the course of the discussion. I hope that a good discussion will ensue and that we may all learn from one another, for I am certain that amongst my fellows I may as yet be counted a novice.

ILLUSTRATING Dr. J. McCUNN'S PAPER

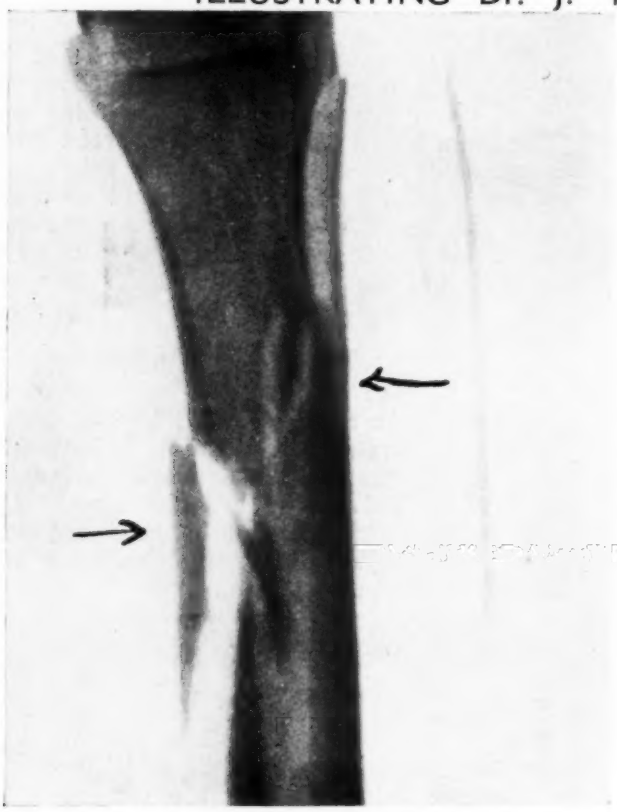


Fig. 1.—Fractured Radius (Comminuted), Greyhound.

Fig. 2.—Ditto, Six Weeks Later.

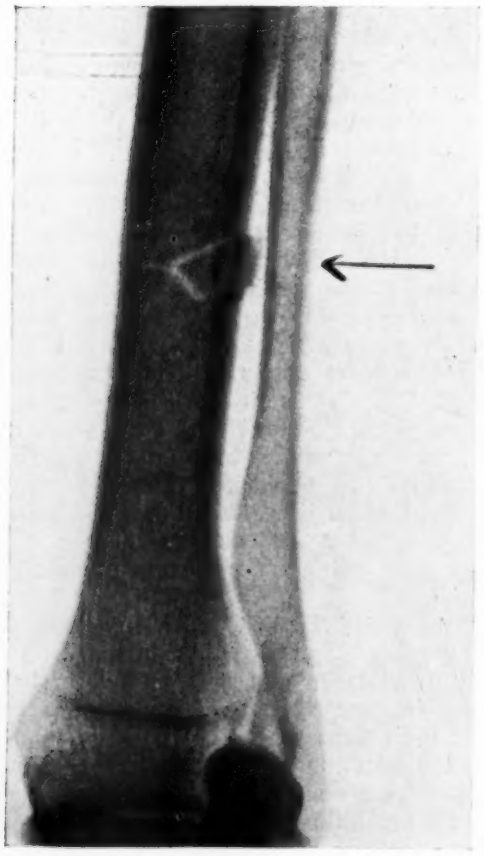


Fig. 3.—Wedge-shaped Fracture, Radius, Greyhound.

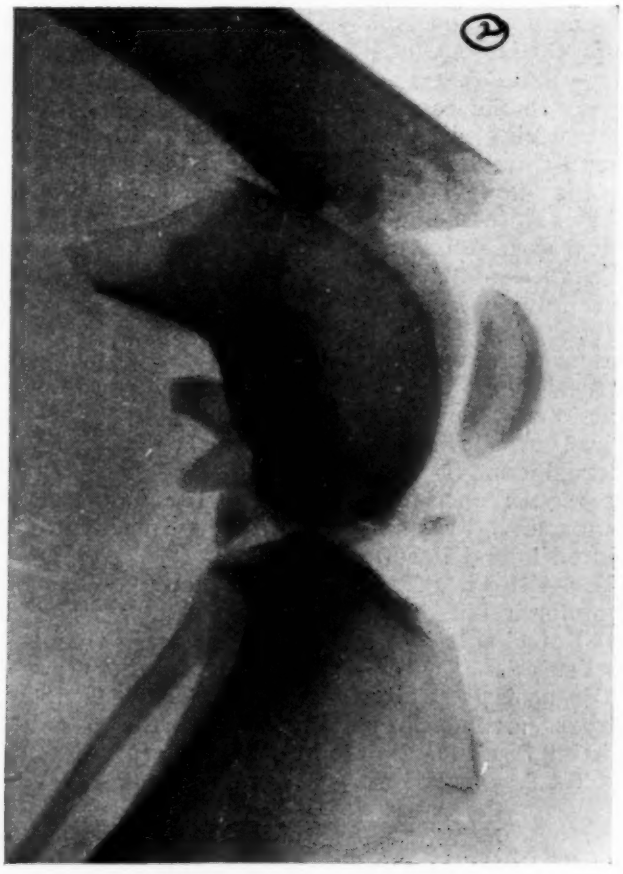


Fig. 4.—Fracture Lower Third Femur with Posterior Displacement.

ILLUSTRATING Dr. J. McCUNN'S PAPER

Fig. 5.—Dislocation of Scaphoid and Fracture of Head of Os Calcis, due to Internal Violence.

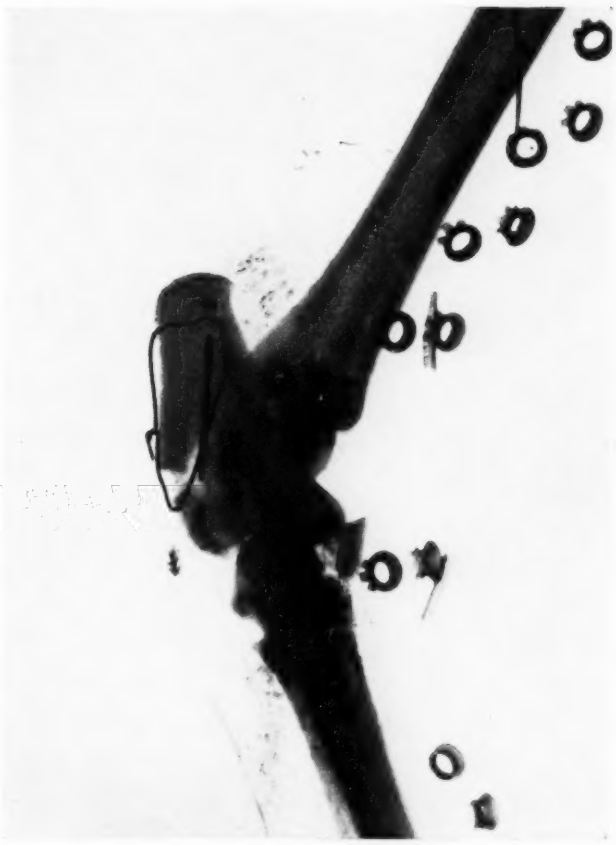


Fig. 6.—Ditto, after Pegging and Wiring.

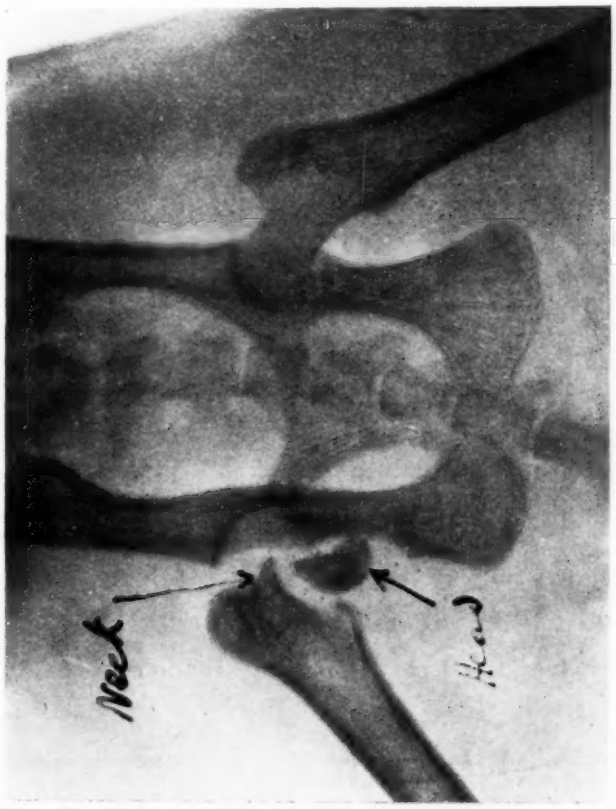


Fig. 7.—Dislocation of Hip and Separation of Head of Femur.

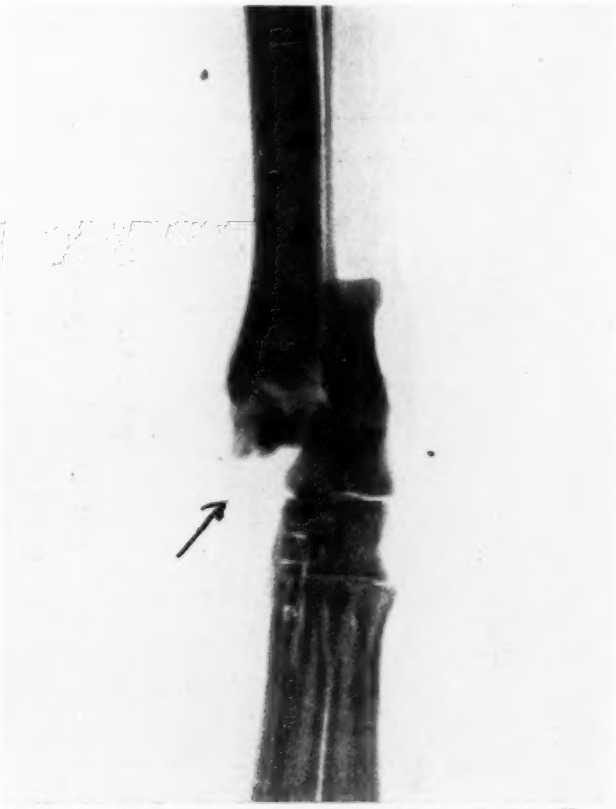


Fig. 8.—Dislocation of True Hock Joint, Fox-terrier. Reduction effected under Morphia.

ILLUSTRATING Dr. J. McCUNN'S PAPER

Fig. 9.—Dislocation of First and Second Phalanges, Greyhound.

Fig. 10.—Ditto, after Wiring. This dog won many races subsequently.

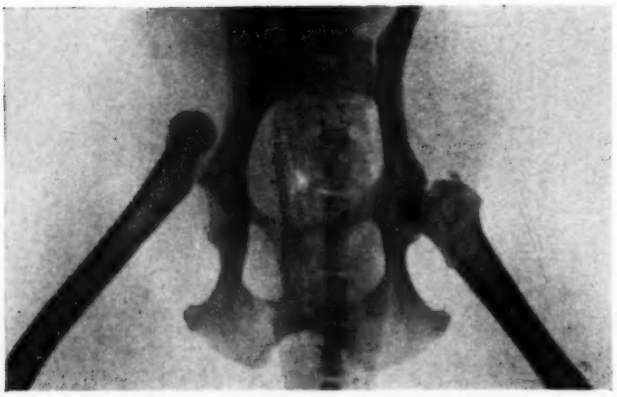


Fig. 11.—Antero-dorsal Dislocation, Femur.

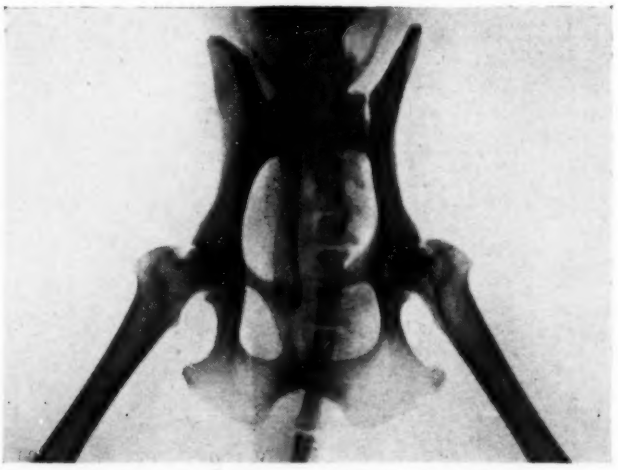


Fig. 12.—Ditto, after Reduction.

I conclude by saying that in orthopædic surgery in the smaller animals we have much to learn, and that, in my opinion, our progress will largely follow that of the human surgeon, who has discovered the great benefits to be derived from the use of removable splints and general ambulatory treatment.

ACKNOWLEDGMENTS

In compiling this paper I beg to acknowledge the assistance I have received from my colleagues at the Royal Veterinary College, particularly my co-workers the Principal and Mr. Formston.

Acknowledgments are also due to the following:—

To Professor Macqueen, who is a veritable veterinary encyclopædia.

To the written word of Hey Groves, Sir Robert Jones and Sir Arbuthnot Lane.

To Robert Milne, the great bone surgeon, of the London Hospital, my late teacher.

British Medical Journal. 1912. Report of Fractures Committee.

To various writers in the *Veterinary Record* and *Veterinary Journal,* particularly:—

Brook, G. H., *V.R.*, 1932, p. 240.
Edwards, J. T., *V.R.*, 1932, p. 362.
Stainton, H., *V.R.*, 1932, p. 187.
Chambers, F., *V.R.*, 1932, p. 91.
Blount, W. P., *V.R.*, 1930, p. 261.
Gallie, J. G. E., *V.R.*, 1929, p. 951.
Elphick, C., *V.R.*, 1927, p. 1927.
Gorton, B., *V.R.*, 1926, p. 411.
Miles, K. A., *V.R.*, 1924, p. 1924.

Discussion

The second session of the morning of Thursday, September 21st, was also occupied by the Veterinary Medicine and Surgery Section, which, with the President of the Section, Captain R. L. Lewis, M.R.C.V.S., D.V.H., in the chair, considered the foregoing paper, there being a large attendance at the Llandudno Town Hall.

The Chairman immediately called upon Mr. Elam to open the discussion.

Mr. C. Wentworth Elam, M.R.C.V.S., D.V.H. (Liverpool University), said:—

I feel that the profession owe a deep debt of gratitude to Professor McCunn for his excellent paper; in fact, all members of the profession have a great admiration for those colleagues who have unselfishly prepared papers to interest us at this Congress, but in the case of Professor McCunn he has given us something entirely new, yet very interesting.

Professor McCunn, in his paper, confines his remarks naturally to the question of skeletal surgery, and he gives three reasons why skeletal surgery has assumed such importance during the past few years. As a practitioner, I would suggest that there are three other important factors which have made it imperative that we must give more thought to the question of skeletal surgery and canine work in general.

Firstly, the population of our smaller animals is increasing, and to-day there are probably several millions of these animals in Great Britain.

Secondly, it is realised by many that our small animal population is one of national importance.

I agree that the greater number of our dogs are of the mongrel type, but their presence amongst us not only brings untold happiness to thousands of Britishers, but finds work for thousands of persons who are engaged in the manufacture of dog foods, dog kennels, etc. In addition to the affection these animals bestow on mankind, they serve as excellent guards of our homes and stores. In fact, if every home and shop kept an Alsatian, it is probable that the burglary profession would become extinct.

At the present time it is agreed that rats are not only carriers of disease, but are responsible each year for millions of pounds' worth of damage to foodstuffs and property, and if it were not for the activities of our smaller animals, this country would be unfit to live in.

The national value of our pedigree show breeds reaches a very high figure, while the foreigner still looks to the Britisher to supply him with the best-bred dogs. The sport of greyhound racing, with its tracks numbering over 200, has found direct or indirect work for veterinary surgeons, and over 20,000 other persons, while the British farmer, who supplies the necessities of food and bedding for the large army of valuable racing greyhounds associated with this sport, has found a new market for his produce which reaches the useful figure of over £1,000,000 each year.

Thirdly, the question of fractures, dislocations and fatal injuries in man and animals is becoming in this mechanical age one of the most important subjects which the medical and veterinary professions have to consider.

During the past 50 years our professions have been successfully engaged in preventing or eradicating serious microbial diseases in man and animals, but their work on behalf of humanity has been largely nullified by the activities of macroscopic agents in the form of man-invented machines, with the result that the subject of surgery has been placed on a pinnacle and medicine is losing some of its former glory.

In the case of one machine alone, *i.e.*, the motor car, it is appalling to find that to-day the motor car is destroying each year 100 per cent. more persons in Great Britain than all the tuberculous cows in these islands. The garages of Great Britain house far more death-dealing agents than all the byres of the British farmer. On the British highways each year over 200,000 persons suffer from fractures or dislocations due to so-called motor accidents, while 7,000 persons are killed. The number of animals also falling victims to the motor car is probably more.

So we find that questions relating to the

smaller animals are important and though they cannot perhaps hold the same interest for those who are interested in the larger animals, they should always find a place in the list of subjects to be discussed at a Veterinary Congress such as this.

Professor McCunn is the first to draw the attention of the profession to the importance of the question of fractures, dislocations and fatal injuries in our smaller animals. That it is an important subject we must admit, but until Professor McCunn stressed its importance the poor tuberculous cow, who only does half the damage of the motor car, held the supreme place as the villain to be discussed at scientific congresses and municipal meetings.

I think you will agree with me that it is essential that we as a profession should pay a little more attention to the smaller animals, for they are playing a very important part in our national life.

The general practitioners, who have served their country well in days gone by, have now to find new fields of work. Britain, unlike Germany and France, where agriculture is flourishing, is foolishly of the opinion that the horse does not play an economic part in transport, so horse practice has diminished. Our cattle population fortunately remains about stationary, and will remain so, provided scientists do not continue to scare the public into the belief that meat and milk are poisons and not food.

I do not think the practitioner need have any reason to believe that our cattle population will diminish. The Minister of Health has recently stated that the health of the nation is unsurpassed. His statement is short, but the British public place far more reliance in this statement than in all the numerous expressions of opinion made by the army of scientific food cranks in this country.

I have been asked to open the discussion on Professor McCunn's paper, and in so doing there is one important matter to which I would like to call your attention, and that is the question of prophylaxis in connection with surgical conditions.

In medicine we are deeply interested in the question of prophylaxis; it is the foundation stone on which the professions build, but in surgery we rarely give a thought to prophylaxis, we are content to leave it in other hands.

The members of both professions should feel proud that they have been able to control the activities of the numerous elusive pathogenic, microscopic organisms so successfully when they compare the crude efforts made by the authorities to control the macroscopic, non-elusive, easily-controlled motor car.

We are members of a noble calling. One of our chief aims is to prevent suffering in animals, and it is just as much our duty to draw the attention of those who control the agents which cause painful surgical conditions as it is for us to discuss the fascinating and interesting methods which can be adopted to relieve or repair the maimed bodies of our patients.

We can rest assured that the subject of dislocations, fractures and fatal injuries will always be one of growing importance until the Ministry of Health realise that they should step in, take up the reins and adopt drastic preventive measures to control at least one agent which has destroyed in a period of seven years in Great Britain 49,000 persons, maimed one-and-a-quarter million of its citizens and destroyed or maimed hundreds of thousands of our smaller animals.

Apparently the Ministry of Health is obliged to remain content with this state of affairs and accept the explanation that all this appalling loss of life and suffering in man and animals is due merely to accidents. Would the Ministry of Health accept such an explanation from the veterinary or medical professions if they made that the excuse in the case of one special disease?

The medical profession have given very careful study to the question of dislocations and fractures, and it is to be regretted, as Professor McCunn states, that the subject has been sadly neglected by the veterinary profession. I agree with Professor McCunn that the literature on this subject is almost negligible, but it should be borne in mind that there are many general practitioners in Great Britain who are doing excellent research work in many branches of veterinary surgery, yet fail to give the profession their original ideas or methods.

It would be difficult for any practitioner to describe in words alone how he deals with each individual case of fracture or dislocation; moreover, to try and memorise the speaker's procedure would probably in some cases bring discredit on the suggested method when the listener attempted the method in his own practice. It is for that reason that I do not intend to express an opinion on the various methods which are adopted in treating these conditions. The subject is essentially a practical one and one which calls for the various views of practitioners in the veterinary press.

There are, however, certain matters in connection with Professor McCunn's paper which call for some further explanation. Professor McCunn discusses joint affections somewhat briefly. No doubt he is fully aware of the troublesome type of knee lameness which occurs in track greyhounds. We would be interested to know what structures are involved in these cases and if he can suggest a reliable treatment.

As regards the question of pseudarthrosis in connection with the femur, the condition appears to me to be far more common in the larger breeds. I admit that a false joint may cause little inconvenience to the ordinary domestic dog, but it is a question if the owner would feel satisfied with such a result in the

case of a valuable greyhound or a large well-bred dog, if a splint had not been applied.

When we refer to Professor McCunn's remarks concerning the treatment of fractures, he discusses immobilisation of the part. I would like to know what is his opinion regarding the use of plaster of paris. Once it is applied is it possible to obtain at intervals a reasonable X-ray photo without having to remove the bandage? In my opinion, it is possible in many cases to treat certain fractures quite successfully by means of a padded splint, bandages and adhesive tape; moreover, should suppuration occur due to uneven pressure of the splint, the practitioner is aware of the condition immediately by the bandage becoming stained at one particular place.

Professor McCunn refers to the use of a Thomas splint. Practitioners no doubt have a knowledge of the splint as used in human surgery and I feel that they would be interested to hear more about it from Professor McCunn.

Next we come to the question of fractures of the tarsus. Professor McCunn states that, in the case of the hock, complete fusion of the bones takes place and seems to cause very little inconvenience. Previous to finding a special method of setting a fractured hock I considered that fracture of the hock in a greyhound was a very serious matter, for usually such an animal was unfit for further racing.

We have read Professor McCunn's paper and we know that he is just the person who is able to give us the first complete work on orthopædic surgery in the smaller animals. I trust he will carefully consider my suggestion, and when he has made this essential contribution to veterinary literature he will still be quite young enough to give us his views on orthopædic surgery in the larger animals, for I feel that there is even a call for such a work.

We have been deeply interested in all that Professor McCunn has told us and we realise that it would have been impossible for him to have increased the interest in the subject by providing patients and giving us practical demonstrations, yet if we could have seen Professor McCunn instructing us on the screen how he deals with the various cases of fractures and dislocations, it would have been of inestimable value to us all.

Let us hope that in the near future the Royal College will possess an extensive and complete film library containing films which deal with the practical side of all of our subjects.

We are all well aware that Professor McCunn, Professor Sir Frederick Hobday and several other members of the profession are interested in the cinema as a means of instructing students. Unfortunately, film work entails expense, but a time may come when the public will realise the stupidity of subscribing money to certain societies who dole out the crudest form of quack treatment to animals in return for the thousands of pounds they receive, and then money may pass into the right channels. Our colleges need this money so that they can develop this new method of teaching, and when that money is forthcoming our teachers will be better able to instruct their students and send them out into the world better qualified to deal with such practical subjects as the one with which we are at present concerned.

Let me once again congratulate Professor McCunn on his paper. To-day has seen the official opening of this new and important branch of our work and the credit of opening the gate into this new field of research belongs to him.

He has given us a sample of his knowledge of the subject. Let us hope that his paper will stimulate other members of the profession to give us their views, so that within the near future every member of the profession will be able to possess a perfect knowledge of the best methods to be adopted in each individual case of fracture or dislocation in our smaller animals.

Mr. Tudor Hughes (Oswestry), who followed, drew attention to two points. Referring to fractures of the mandible, he said he was somewhat at a loss to understand the procedure which the essayist envisaged in regard to fixing up the animal with bandage. He thought in a case of that description it would be far better to do a job that would look after itself. Wiring the incisor teeth, he suggested, was one way of accomplishing that end. In the case of what was termed split symphysis in a puppy there was no necessity to worry about the possibility of damaging the teeth by wiring. In the case of the older animal one felt on the horns of a dilemma and bound to choose the lesser of two evils. But was was the use, he asked, of perfect teeth with a broken jaw? Was it not far better to have a mended jaw with damaged teeth? He pointed out that incisor teeth were not vital nor as essential as molar teeth. He had found the best results to have followed wiring the incisors with silver wire and turning down the screws.

Referring to his other point, dislocation of the elbow, Mr. Hughes said that sometimes one would see one or two of the puppies in a litter afflicted with that trouble. They would find that the elbow was right out and the puppy more or less flat on his sternum and unable to rise into a natural position. Was there anything hereditary in the complaint, he asked, or was it due to improper bone development? Personally he did not think anything could be done when a puppy was brought in in an advanced stage.

Lieut.-Colonel H. Greenfield (Camberley) said that as one who, in the days of his youth, suffered from over-splinting, he was perhaps inclined to consider that they had immobilised fractures over-much. They knew that in many fractures

in such places as the shoulder, femur, etc., they could not apply splints, yet they often got perfect union. He contended they should learn a lesson from that fact and not over-splint.

One thing he was glad to see recommended was the use of Poroplaster. He had found it of good service in the course of his practice, and cited an instance—a case of a fracture of the radius at the elbow—where, following a misfortune which all sometimes experienced, the danger of a permanent impediment to the dog was removed by the application of a Poroplaster splint.

Referring to another experimental effort of his, Lieut.-Colonel Greenfield said that he had always felt they should do something to the fractures in the region of the shoulder—places where it was impossible to apply the ordinary splint. Clients were dissatisfied if nothing was attempted. He had a case of a dog, a spaniel, with a fracture near the upper head of the humerus. He applied a bandage and on top of that placed strips of plaster of paris which, when they had set quite hard, he used as a splint and bandaged again.

Continuing, Lieut.-Colonel Greenfield said he would ask Professor McCunn if he could give some information and advice as to why, in some animals, the healing of the fracture did not ossify, and why, as in one case of which he was aware, it appeared to have decalcified.

Lieut.-Colonel Greenfield, adding a remark regarding certain earlier observations anent the schools, said he was perhaps in the unique position of having been a student at the Veterinary College both at the age of 20 years and again after he had passed his fiftieth birthday. He said he was full of admiration for the professors and their efforts to overcome their difficulties, especially in regard to horses, and the help he had received in canine work had so aroused his enthusiasm that he had started again in life as a general practitioner.

Mr. T. Parker (Newcastle) gave illustrations of two fractures and one dislocation. His first referred to scapular fracture in the small animal. It occurred, he said, in a rough-coated collie puppy aged twelve weeks. He had allowed the puppy to take free exercise on a small farm and unfortunately it walked up to the rear of a grazing horse and was kicked, the shoulder blade showing a clean fracture two or three inches above the scapulo-humeral joint. It was his own puppy and, after a careful examination, he came to the conclusion that it would be very difficult either to bandage or even to make any real practical use of the application of plastic bandage for the purpose of immobilising the part. Accordingly, he had the puppy placed in a large box with a good bed and simply did nothing except to see that the animal was comfortable. The fracture united and the puppy was all right within two months and was doing well. No evidence could now be detected of the fracture of the shoulder.

Mr. Parker next referred to fractures of the patella and described how, by the application of layers of wool followed by a bandage of plaster which held the limb firmly in position, the animal was able to run about within a fortnight and when the bandage was removed made an absolute recovery.

His third illustration concerned a dislocation which he had suffered personally. He mentioned it because it brought to light a set of circumstances which showed that a dislocation might be accompanied by symptoms far removed from the actual seat of the trouble. He recalled that he was once kicked on the leg by a cow. The injury resulted in a huge swelling and the leg became black and blue. About a month later he found that whenever he sat down he suffered a peculiar pain in the ankle and, furthermore, it was only with difficulty he could properly move his foot. Finally, he found that the patella was "out." The dislocation was in the patella but all the while he suffered the pain in the ankle.

Mr. A. Thomson (Glasgow) made reference to treatment of the digits, especially in racing greyhounds. Like Professor McCunn, he had experienced difficulty in differentiating fractures from rupture of the lateral ligaments when the pain was localised in the digit. If the animal suffered a great deal of pain and a fair degree of swelling, proper diagnosis could not be established. The general procedure therefore was, first of all, three weeks' rest. If after that the animal was still going lame and the pain was localised to the first or second joint, amputation was the only method of getting the animal right. In amputation it was no use attempting the ordinary flap method; the only successful amputation was by the filleting method. By filleting the bones the pad was left in position. Ordinary antiseptic measures could be used to prevent any pus forming in any degree. The bandage might be removed at the end of three days and the stitches in a week's time. It was almost possible to say that in six weeks' time the animal would be racing again. After racing on hard going they would probably discern a slight lameness for a day or so. The animal could be raced at weekly intervals for a month or two and after that they would find it would go quite well.

Regarding fractures of the hock, he considered that if the fracture was in the rear portion of the hock the animal might just as well be destroyed so far as its racing career was concerned. Recently he had a case of a valuable greyhound, a particularly fine animal, which, unfortunately, had fractured a hock. When the manager brought the animal to be treated he

appeared very sceptical and remarked that if it proved to be of no further use for racing it might be possible to put it to stud. The fracture in this case was in the antero-medial aspect of the hock. The dog was placed in a Thomas splint and kept there for three-and-a-half weeks. He removed the splint in trepidation and found the leg had set almost perfectly. Immediately the splint was removed the animal was capable of walking, but with some slight stiffness. After five weeks the animal was capable of walking and running about and one could hardly perceive anything wrong. So far it had not been raced. At the same time, he continued, he had a rather peculiar case. It concerned an animal in which the hock could be pulled up and straightened without any movement of the os calcis. He did not know whether it was a fracture or merely a rupture of the ligament and he put the animal in a kennel and forgot about it for a day or two. Much to his surprise, however, he next found the animal was able to walk without much pain. Accordingly, he decided to leave it alone for three weeks or a month, during which time the animal was tried out, unknown to himself, and performed quite well. The dog, in fact, was still racing.

Professor G. H. Wooldridge (London), who concluded the discussion, remarked that he desired to call attention to one or two matters with which he felt Professor McCunn might have dealt. In particular, he said, he would like to have heard a description of the technique adopted in the wiring of fractures. Professor McCunn had made that almost peculiarly his own and had enjoyed such successful results that a short description of the work would have been helpful to all.

Professor Wooldridge also drew attention to the line of treatment which had been suggested for the fixation or reduction of luxated patella in the dog. "I may say," he remarked, "after a long experience and a variety of attempts, I have been uniformly unsuccessful, and I am not at all hopeful, even by the adoption of the line of treatment he suggests, that successful results are likely to be obtained."

Continuing, Professor Wooldridge said there was a condition of the stifle in puppies that had caused him a lot of thought. It was where they had a congenital double joint of the stifle. The puppy was absolutely unable to bear any weight and was usually "put down." Both hind limbs were similarly affected. He had had one or two cases with a pressing request that he should do something. Accordingly, he had decided to make a further attempt, and, he was glad to say, the result proved a success. The attempt had been repeated on several occasions, the results being equally successful.

His procedure had been, first completely to flex the tarsal joint and fix it in this position by means of narrow strips of adhesive strapping round the tibial and metatarsal regions. Both hind limbs are submitted to this preliminary step. Next, a longer piece of the strapping was taken and after fixing one end to the tibio-metatarsal strapping, the stifle was forcibly and completely flexed in the normal direction and the free portion of the strapping was passed over the croup and secured to the tibio-metatarsal strapping of the other side, after the second stifle had been completely flexed in the same way as the first.

The procedure, he added, had the effect of producing a peculiar-looking appearance upon the puppy, which looked as though it was trussed up like a fowl for table.

Owners might think there were indications of cruel treatment, but the puppies did not "seem to mind." They were lively and cheerful, and fed well. In a week or two some little readjustment became necessary as the strapping tended to slip back towards the tail. He maintained the strapping for three or four weeks and the ultimate result of the cases had been most successful. Some of them had, in fact, been so successful that subsequently nothing wrong could be detected with the limbs, and they had been able to win in shows in strong company.

He had had no success in the treatment of congenital dislocations of the elbow joints.

Regarding dislocations of the hip joint, he thought Professor McCunn might have emphasised a little more the great help and, in fact, the necessity of X-rays in that connection. A description of the symptoms of dislocation of the hip joint was almost exactly the same as would be given of a fracture of the neck of the femur. The treatment required, however, was so different that absolute certainty of diagnosis must not be neglected. An X-ray was imperative and should be taken at several angles.

A very considerable amount of physical strength was required to reduce the dislocation even when the animal was under deep anæsthesia. If, on the other hand, it was a fracture of the neck of the femur, such manipulation would be in the worst interests of the patient.

Reference had been made to pyropuncture in cases of false joints. That was a line of treatment he had carried out in a number of cases. The case referred to in the paper was actually one of his own patients. The method consisted simply of using a strong suture or darning needle made red hot and placed straight through the skin into the fibrous tissues. It could only be done satisfactorily, however, where the bone was immediately subjacent to the skin. The tibia was therefore one of the bones which lent itself to that line of treatment.

He believed, however, that one should not guarantee results in any of the cases. "When I am asked by clients if I can guarantee certain results," he added, "I always refuse. I just guarantee to do my best and no more."

THE REPLY

Replying to the discussion, Professor McCunn thanked Mr. Elam for his kindness in opening the discussion. "He has been very kind," he said, "and I almost thought the mantle of Elijah had fallen upon Elisha. The opening was typical of his renowned chief at Liverpool, and I must thank him again for the kind words he has said about me."

Before dealing *seriatim* with the points raised in the discussion, Professor McCunn gave a demonstration of the uses of the several splints, which had been exhibited during the discussion. These included various types of Thomas splints, leggings, poroplastic felt, window light and Gooch's splinting.

Replying to Mr. Elam's query regarding treatment of a troublesome type of carpal lameness in greyhounds due to an arthritis affecting the wrist, Professor McCunn said it was a very difficult proposition; in fact, it was one of the worst, and he would much prefer to deal with a fracture. The structures involved were, in his opinion, the synovial membranes of the carpus and of the tendon sheaths. X-rays rarely showed bone involvement. He named the condition carpal teno-synovitis. The best treatment was rest and hand massage. For some considerable time he had been using Scott's dressing, which he had found "worked wonders" in quite a number of cases.

Pseudarthrosis in the form of false joint of the femur was also a difficult problem. One often saw cases of a false joint in the middle of the femur, in spite of which the dog walked quite normally. He also knew of cases of dogs being capable of walking quite normally where there was absolutely no X-ray evidence of union. His opinion regarding plaster of paris was that its only disadvantages lay in the fact that it was heavy, and that the site of the lesion was buried. He had not registered any reasonable success in the manufacture of split plasters, owing to the relative thinness of the limb.

Reasonable X-ray photographs could be taken through plaster if one had an efficient operator and machine.

With regard to tarsal fractures and dislocations, he was of the opinion that if the true hock joint remained unaffected, fusion of the lower rows could occur without unduly inconveniencing the dog's action. This was well shown in repairs following dislocation of the scaphoid.

He agreed with Mr. Elam that great use could be made of the cinema in demonstrations. They were gradually collecting a film library at the Royal Veterinary College.

Replying to Mr. Tudor Hughes, and his references to the mandible, Professor McCunn said that there was no doubt that if the fractures were near the canine teeth he would wire, but, unlike Mr. Hughes, who left the wire exposed, he always buried it under the mucous membrane. Congenital dislocations of the elbow in the puppy were not as simple as one would think, and one would rather not see them. Single cases were due to malposition in the uterus. Multiple cases were no doubt associated with developmental errors.

Lieut.-Colonel Greenfield had declared against over-splinting which, he said, entirely agreed with his own view. His views on the question of why in some cases during the healing of a fracture ossification did not occur, were to be found in the paragraph on pseudarthrosis. The particular case mentioned by Lieut.-Colonel Greenfield was one for the pathologist.

Mr. Parker, he went on, had referred to treatment of fractures of the scapula. His treatment was the best that could be adopted, namely, do nothing.

Replying to Mr. Thomson, on the whole, he agreed with his remarks. Racing dogs invariably pulled up lame after amputation of a digit. This lameness was, however, one which need not cause any worry for, as Mr. Thomson had so ably described, it gradually disappeared. There was no doubt that fractures involving the rear part of the hock were more troublesome than those of the anterior aspect. Fractures of the os calcis were amongst the easiest in which to make use of the mechanical aids of wiring or pegging.

Regarding fractures of the digits, a point raised by Mr. Thomson, he believed that if there was a rupture of the lateral ligament there were only two correct procedures—wire or amputate. The flap method of amputation was useless. Dorsal incision and filleting was the best. They had now improved on the old incisions and instead of doing them in the vertical direction they did them transversely—literally picked the bones out and so saved the entire pad.

Dealing with the points raised by Professor Wooldridge, Dr. McCunn said the time factor would not allow him to talk about wiring, pegging and the manipulation of bones by direct mechanical means.

Professor Wooldridge's method of treating the so-called congenital double joint of the stifle he could recommend as being very good. He had some experience of that method recently. He also agreed that in hip joint dislocations it was always best to have an X-ray taken because, as he said, "We have tripped up on so many snags."

He recalled that in one case, in which an X-ray had been taken, he was asked to reduce a dislocation. "I tried for nearly three hours and failed to understand why I could not reduce it," he added. "Finally, I asked to see the X-ray film which the veterinary surgeon had left behind. He brought it and I found that it showed complete fracture of the neck of the femur, and

the head of the femur was resting in the acetabulum."

X-rays were useless if practitioners could not read them, and a sound anatomical knowledge was necessary if their interpretations were to be correct and helpful.

In further reply to Professor Wooldridge, great physical force was not always necessary in the reduction of a dislocated femur if the spasm of the adductor muscles was really broken down by massage. It was remarkable what degree of movement of the femur could be attained following this procedure. Often all that was then necessary was to circumduct the bone and, while doing this, to rotate it on its long axis. The direction of these movements depended upon the relation of the head of the femur to the acetabulum. In uncomplicated cases, once a femur was reduced, it was rare for dislocation to recur. Splints, plasters, etc., were unnecessary.

Professor Wooldridge's advice that one should not guarantee results was just what one would expect from the modest and sagacious professor, and as one who had "sat at his feet as a pupil," it was advice for which he had many times been grateful. "Always do your best, but keep on the safe side," said Dr. McCunn.

In conclusion, he thanked the meeting for the kind way in which they had received his effort and he very much regretted that time did not allow of further discussion. He would like to take that opportunity of thanking Messrs. Ede and Furby for their great help in taking and preparing the X-ray photographs, which were absolutely essential in the preparation of such a paper, and Messrs. Arnolds for their co-operation and advice in the manufacture of the surgical appliances used.

EGG-LAYING RECORD

A white Leghorn pullet owned by a poultryman of Sardis, British Columbia, which took part in the thirteenth egg-laying contest instituted by the Federal Government at the Dominion experimental farm at Agassiz, in British Columbia, has equalled the world's record by laying 357 eggs in a year.

* * * * *

A petition signed by about 120 people in the Chagford district, protesting against the tarring of one of the roads in the Dartmoor area and urging that the whole question of tarring by-roads where steep hills occur should be reconsidered in the interests of riders and of farm horses, was presented at a meeting of Okehampton Rural Council. The surveyor said the objection might be met in some degree by the use of a larger size of stone chipping with the tar.

* * * * *

Engaged in this season's fox hunting are 200,000 Hunter horses which have cost their owners, in the first instance, quite £10,000,000. The upkeep of these horses will absorb £8,000,000 before the season is over and will give employment to 60,000 men.

General Article

THE INSPECTION OF ANIMALS AT OUR PORTS BEFORE SHIPMENT*

M. J. MacCLANCY, M.R.C.V.S.

Portal Veterinary Supervisor, Dublin

When I accepted the honour of reading a paper before the Veterinary Medical Association, I scarcely realised the difficult task before me. I now feel very bashful at my initial effort, and I fear I am quite incapable of dealing worthily with my subject in a concise paper.

At the same time, I have proof of the sincere sympathy shown and the practical help given by this Association to the Department's veterinary staff to enable them to get certain grievances redressed, and I considered it only fair that somebody should contribute a paper to give the Association some idea, at least, of an important part of a veterinary inspector's duties, that is, *the inspection of animals at our Ports before shipment.*

I am sure you are all aware, and it is something to be proud of, that the Irish Free State is the most important cattle exporting country in the world. This fact is shown in the report of *Trade and Shipping Statistics.*

Great Britain depends almost entirely on this country for her supplies of live cattle. In 1931, her total imports under this head numbered 766,523, valued at £12,615,945. Of these 738,967 came from the Free State, to the value of £12,048,496. Canadian supplies were next, but far behind, being in numbers only 26,991 and in value £553,749. Imports from all other countries were practically negligible. In numbers they reached 565, whilst their value fell short of £14,000.

During the year 1931 British imports of sheep and lambs amounted to £1,186,106, whilst imports of pigs were valued at £2,212,612. The returns show that all these imports came entirely from the 26 counties of the Free State. These figures show the enormous revenue from the live-stock trade. In an agricultural country like Ireland, which is fortunate in having a surplus of animals for export, the efficient inspection of these animals assumes a great importance from a commercial, as well as from a public health, point of view. Our most accessible and possibly our best market is located just across the Irish Channel, and it cannot be denied that our ability to secure the best markets for the disposal of our surplus livestock must exercise a vital influence on the prosperity of the country.

* Presented to the Veterinary Medical Association of Ireland at Dublin, August 8th, 1933.

By efficient inspection, therefore, it is up to us to help to secure and maintain these markets in the face of any competition which may be encountered from other countries.

I have endeavoured to make this paper as comprehensive as possible, so that it may be of interest to the general practitioner and part-time inspector. Therefore, to give more than a bare outline of the Acts and Orders under which an inspector operates, is beyond the scope of the paper.

The Diseases of Animals Acts, 1894 *to* 1932, is the essential authority, together with certain Orders made from time to time thereunder, by which a veterinary inspector has power to deal with animal disease. The Act of 1894 was a consolidating one which incorporated all previous Acts dealing with animal diseases. A large number of Orders which amplify these Acts and have the same force as an Act, are made by the Minister for Agriculture to deal with specific conditions or diseases as occasion arises.

These Acts and Orders are drawn up with the intention of providing legislation whereby contagious diseases of animals may be controlled, eradicated and prevented from being introduced from abroad, and also to protect animals from unnecessary suffering during sea and inland transit.

The Acts, accordingly, provide for the compulsory notification of the existence or suspected existence of *certain scheduled diseases, viz.*: cattle plague or rinderpest, contagious pleuro-pneumonia, anthrax, glanders or farcy, epizoötic lymphangitis, rabies, parasitic mange, swine fever, sheep pox, sheep scab, foot-and-mouth disease, bovine tuberculosis (in certain forms) and contagious abortion of cattle (for some purposes). Powers also exist for the inclusion of any other disease which the Minister may from time to time consider necessary; also for controlling the importation of animals and things which may introduce one or other of these diseases from abroad; and amongst other powers conferred by the Acts is *the veterinary inspection of animals for export by specially trained persons.*

Through the efforts of the veterinary profession, pleuro-pneumonia, rabies, glanders and epizoötic lymphangitis have been completely eradicated from the country, and the elimination of such a serious menace to our herds as the terrible scourge of foot-and-mouth disease is scarcely realised by the community.

Of the scheduled diseases mentioned there is, fortunately, little danger of the re-introduction to the country of some of them, while others crop up occasionally and are kept under control partly by the Ministry and partly by the local authority.

As it is with respect to animals awaiting shipment at the regular exporting ports, and in particular with veterinary inspections at Dublin Port, that I propose to deal, I will confine my remarks on disease to:—

(*a*) *Tuberculosis,* as specified in Article 13 of the Bovine Tuberculosis Order, particularly chronic induration of the udder; also to

(*b*) Our examination for lesions resembling *foot-and-mouth disease*; and to

(*c*) *Sheep scab* and conditions that may be mistaken for it.

But the inspection of animals at the port embraces a much wider field than these diseases. *The Transit of Animals Order,* 1927, prohibits the shipment of any animals which, owing to infirmity, illness, injury, fatigue or any other cause, cannot be carried on the sea journey without unnecessary suffering; whilst the same Order empowers a veterinary inspector of the Department, by service of a notice, to prohibit the shipment of an animal that, owing to similar reasons, cannot be carried on the sea journey without unnecessary suffering.

Consequently, the veterinary examination of animals required to be carried out, under the *Exportation of Animals (Irish Free State) Order of* 1923, before shipment can take place, has regard not only to the freedom of the animals from disease, but likewise their fitness to undergo the sea voyage. Article 3 of this Order prescribes the conditions generally that must be complied with in the case of animals moved to a port for shipment.

After animals arrive at the ports in Ireland, each animal must be detained and rested for a period of not less than two hours in a place of inspection, and must be watered and liberally fed with suitable food, and during that period the animals must be under the observation of the veterinary inspectors.

Furthermore, at the end of the detention period, no animal is allowed to leave the place of inspection unless and until it has been certified to be free from disease.

The *Exportation Order* has reference mainly to the disease question, although, as can be seen, there is also a humane intention in the Order.

The inspectors not infrequently find that some animals undergoing detention are unfit for shipment from various causes, although from the disease point of view their condition might be satisfactory. For example, an animal might suffer from lameness, injury, blindness or advanced pregnancy, etc.—in such cases the animals are rejected for shipment.

There is increasing need for securing that animals may be exported in the best marketable condition, apart from the humane reason contemplated by the Act of 1894 and strongly and persistently advocated by the various humanitarian societies. The report of the *Committee of Inquiry into the Marketing of Free State Livestock,* set up in 1925, and which I had the

pleasure of attending officially, made useful recommendations in this respect, and many of these have since been embodied in the Transit of Animals Order of 1927.

Under the *Exportation Order* in question, certified animals, after removal from the place of inspection, must be removed direct to the vessel for shipment. Animals rejected as unfit for shipment are detained overnight in a covered pen under lock and key and are branded in such manner as is required by the veterinary inspectors for the purpose of identification to prevent unauthorised substitution.

There is a very thorough inspection of all animals for shipment carried out at the ports, with the result that out of a total of roughly 900,000 animals presented for shipment at the Dublin Port yearly, there are over 6,000 rejected as unfit for shipment to Great Britain, or an average of about one in every 150 examined (*i.e.*, 0·66 per cent.).

(a) Bovine Tuberculosis Order, 1926

About one-third of the rejected animals are cows which come under Article 13 of the Bovine Tuberculosis Order of 1926. This Article states that " it shall not be lawful for any person to bring or carry or send or cause to be brought or carried or sent to any port or place of inspection at a port for shipment, any cow suffering or appearing to be suffering from tuberculosis of the udder, indurated udder, or other chronic disease of the udder; from tuberculous emaciation, or suffering from a chronic cough, and showing definite clinical symptoms of tuberculosis."

Furthermore, Article 14 of the British Ministry's Tuberculosis Order of 1925 expressly prohibits the landing in Great Britain of an imported animal which is or appears to be suffering from any of the forms of disease specified in that Article.

Special steps are taken at the Irish ports in the inspection of animals found suspect during general observation, and such animals are further subjected to a searching clinical examination.

The number of animals rejected for suspected tuberculous emaciation or suffering from chronic cough and showing definite clinical symptoms of tuberculosis is, of course, infinitesimal compared with the number rejected for indurated udder. It would not be possible to get the history of such cases and examine sputa, etc., for diagnosis during the course of portal inspection.

Clinical examination of the udder is of paramount importance in the inspection of cows for shipment, as not only have cows which appear to have tuberculosis of the udder to be reported, but those with indurated udders or other chronic disease of the udder must be rejected from shipment.

The differential diagnosis between physiological irregularities and pathological abnormalities requires time and patience, and is oftentimes very difficult and requires experience.

Routine Examination.—All cows at the port presented for exportation are accommodated in pens containing no other animals, and must be tied for the purpose of examination. It is customary for the veterinary inspector to walk slowly up and down behind them, taking a careful survey of each animal before proceeding to make a clinical examination. The udder of each cow is then manipulated from behind, by passing the palm of the hand over the whole surface of the udder and palpating the udder tissue with upward pressure, taking particular note of the feel of each quarter.

Induration of the udder is not a diagnostic sign of tuberculosis of the udder and is often a symptom of other forms of inflammation of the udder.

Veterinary inspectors at the port must, therefore, use discretion and judgment before returning the cow to the local authority inspectors as suspicious of tuberculosis. Of course, in advanced cases where there is a chronic hypertrophy involving induration of the entire quarter one is always suspicious.

There are certain characteristics present, and these can be recognised by clinical examination. When one meets with a chronic induration, particularly in a hind quarter, which is painless and hard like a stone and cold when palpated, one is perfectly safe in serving Form T.11 on this type.

Mr. Begg, M.R.C.V.S., of Lanark, Scotland, stated that, in his own experience over a period of years, the number of cases involving a fore quarter was probably as low as 5 per cent. to 10 per cent. of the total number of cases affected with tuberculosis of the udder. I quote this, as this veterinary surgeon has made a particular study of the disease in cows.

When only one or two quarters are affected the changes in them can be most easily appreciated by comparing them with the remaining apparently healthy quarters. The absence of symmetry and uniformity between the affected and the unaffected quarters, particularly when the cow is milked, is most noticeable. The affected quarter does not feel quite so collapsed and flaccid as it should, and in some cases distinct hard nodules can be felt.

Examination of the supramammary gland is considered to be a help for a definite diagnosis. But as its appearance is not always characteristic and as it is difficult to locate, it is not of much use to a portal veterinary inspector who cannot delay over his diagnosis.

Udders of springers or recently-calved cows overstocked with milk present great difficulty owing to the congestion of the gland or what is

termed "flagging" by the cattle trade. The œdema of the udder which precedes calving and persists for some little time after is a purely physiological condition which is also seen in recently-calved cows overstocked with milk. These cows are always milked out if practicable before examination, but it is almost impossible to examine such udders for induration until the gland subsides.

When making a clinical examination of the udder, one of the most essential things to bear in mind is the development and texture of the udder tissue of each particular quarter compared with the corresponding quarter of the organ, and even the feel of a normal udder cannot be appreciated until one has experience.

It takes a long time to acquire experience, and as the time at one's disposal as a portal inspector is often limited, one's opinion must be given and responsibility taken without undue deliberation. The result of your diagnosis may mean a big loss to the shipper or owner if a number of his cows are rejected. On the other hand, if a cow is passed for shipment here, and is rejected for induration of the udder by a British Ministry's inspector, the animal is liable to be slaughtered in the landing place under the provisions of the *(British) Importation of Animals Act,* 1922, which permits of no compensation paid in respect of animals slaughtered in a landing place on account of disease.

Although induration of the udder is sufficient justification for rejecting an animal for shipment, it is necessary for a veterinary inspector to have reasonable ground for suspecting that the animal is suffering from tuberculosis under the Order before detaining the animal for the purpose of further examination by the local authority veterinary inspector, when the usual form T.11 is served on the owner, person in charge, local authority and the department.

In this way veterinary inspection of animals at the port contributes to the administration of the Tuberculosis Order from the public health point of view, by removing a source of immediate danger to human health and, at the same time, by reducing the number of infected animals able to spread disease amongst other animals.

Consequently, it is a matter of vital importance that every possible precaution should be taken at the Irish ports not alone to diagnose a tuberculous udder if possible, but also to secure that no animal coming within the scope of the prohibition in Article 14 of the British Order is allowed to be shipped.

There has been a general tightening up of our examination at this side, with the result that comparatively few cases now escape our staff. Before passing on from tuberculosis of the udder, I would like to bring to your notice the opinions of some of our eminent experts on the subject, *viz.*:—

The Chief Veterinary Officer of the City of Manchester (Colonel Brittlebank) stated in an address in April, 1928, with reference to diagnosis of tuberculosis of the udder, that if he were asked to describe it, he would say that any abnormality found in a quarter of the udder may be udder tuberculosis. In a vast experience he had many surprises when he said definitely, on mere clinical examination, that the udder was not tuberculous and it subsequently turned out that it was.

Nocard, a well-known veterinary expert, remarked that the diagnosis of tuberculous mammitis was very difficult. He said "even if a cow has reacted to tuberculin, it does not necessarily follow that the induration of its udder is tuberculous, for tuberculous cows, as well as healthy ones, are liable to contract mammitis of various natures."

Gofton, of Edinburgh, says, regarding indurated udders: "They should all be considered as indicating a suspicion of tuberculosis, but with some forms of mastitis it is clinically impossible to differentiate the induration from that of tuberculosis."

Professor Delepine, who has had great experience in this problem, remarks that "It is impossible for the most experienced veterinary surgeon to distinguish by inspection and palpation tuberculous mastitis from all other forms of mastitis." He said also that "It is practically impossible for a veterinary surgeon, unaided, to discover by ordinary inspection early tuberculous lesions of the udder." Delepine found in his work at Manchester and working with highly-experienced veterinary inspectors, that not more than one-third of the udders, which on inspection appeared to be possibly affected with tuberculosis, were on bacteriological examination proved to be actually tuberculous. These opinions are quoted to show the difficulty of diagnosis of this condition, and I am of opinion that most experienced veterinary inspectors will agree with them. Personally, I believe that no man could definitely say, on palpating an udder, whether the induration was tuberculous or not.

Recent papers presented in England, and published in *The Veterinary Record,* by *Mr. H. L. Torrance* and *Mr. H. T. Matthews,* and the paper presented by *Mr. R. Simpson* at the Congress Meeting are most interesting on this subject and should be read and studied by veterinary inspectors.

The great majority of the cows rejected at the port for induration of the udder or suppuration come under the heading of dry fat cows being shipped for immediate slaughter. Dry cows with atrophied udders, provided the tissues or stroma of the glands are not indurated or irregular in consistency, are shipped; but in quite a large number of instances where one meets with suppuration of the udder, in which

one or more atrophied quarters retain pus for a long period, these cows are rejected.

Of course, one often meets with cases of *acute mastitis,* which is most common during lactation—these cases present little difficulty, owing to the occurrence of general disturbance in conjunction with the local symptoms of congestion and enlargement of the affected quarters.

Generalised tuberculosis is not often met with at the port. The methods of diagnosis are very limited, and it is not an easy condition to diagnose unless the symptoms are distinct and the case advanced. It is a fact, I believe, that many cattle which, to all appearances, are in perfect health, may be found when slaughtered to be the subjects of extensive and active tuberculous lesions—evidence of this can be obtained practically every week in the public abattoir.

Of course, when an animal is presented for inspection with a look of unthriftiness, the coat staring, the hide bound as if stuck to the ribs, a short cough with evidence of general loss of condition compared with its companions, the animal is promptly rejected as not fit for shipment.

Before leaving this important subject, I may state that the Transit of Animals Order of 1927 has made improvements of major importance in the conditions under which cows are inspected and shipped within recent years at the port. Practically all springers and milch cows now await shipment in comfortable covered sheds, where they are rested, watered, fed and inspected. This class of animals is also given preference on board the boat, and it is now compulsory to accommodate them on the main deck of the vessel as far as possible. There is also overhead protection on the forward main deck, and all animals are classified and tied in separate pens with their companions.

(b) Foot-and-Mouth Disease

Before shipment of animals from Irish ports, the examination carried out prior to 1912 was superficial, but since the outbreak of foot-and-mouth disease that year, this has been changed into the present system of portal veterinary examination entailing the handling and critical examination of each animal intended for exportation, including what has come to be known as " mouthing " (*i.e.,* a close inspection of the lips, tongue and palate of each animal).

This work is of a very arduous and exacting nature and has very much increased the duties of the veterinary staff.

Until the end of June, 1912, Ireland had been wholly free from foot-and-mouth disease for more than 28 years. During all that time of immunity in Ireland, and since then, the disease has raged on the Continent, and recurrent attacks have occurred in Great Britain. Consequently, measures were taken by the department to prevent the introduction of the disease into Ireland.

These measures include the stoppage for the time being of the importation into this country from Great Britain of cattle, sheep, goats and other ruminating animals and swine; the disinfection on arrival in Ireland of dealers and drovers coming from British markets, and also the prohibition of the landing of hay and straw, grass and grass turves or peat moss or other materials capable of being used as litter for animals.

The success of this precautionary action is attested by the fact that when outbreaks did occur in Great Britain, in none of these cases, though of frequent happening, was the infection carried into Ireland.

It is scarcely necessary for me stress the responsibilities of portal veterinary inspectors, owing to the seriousness of an *outbreak of foot-and-mouth disease at a port in Ireland,* or of an outbreak in Great Britain in cattle recently exported from Ireland. Suffice it to say that if an animal arriving at a port for shipment is suspected to be suffering from foot-and-mouth disease, the veterinary inspector concerned must forthwith take steps to prevent the shipment of any livestock from the port until further notice, and if the case is confirmed, all livestock exports from Ireland are suspended. Similarly, if foot-and-mouth disease is suspected in an Irish animal at a landing place in Great Britain, all exports of livestock are to be stopped until a diagnosis of the case has been made, and if the disease is confirmed in an Irish animal in Great Britain, all exports of livestock must be stopped pending further instructions.

Since the year 1912, there were outbreaks of foot-and-mouth disease in Ireland in 1914, 1921 and 1928.

These outbreaks were a very heavy financial loss to the country, considering that the cattle exports alone from the Irish Free State are valued at, roughly, £12,000,000 per year, or a million a month, or for all livestock between 15 and 20 millions per year—so that the stoppage of the cross-channel trade means a very serious loss to stock owners.

Over one-and-a-half millions of animals are exported from the Free State to Great Britain yearly in normal times, and more than half of these are shipped *via* Dublin Port. As it is necessary to " mouth " each beast, there are over half-a-million cattle " mouthed " by the veterinary inspectors at the Free State ports every year.

As foot-and-mouth disease is regarded as the most contagious of all animal diseases, the policy of slaughter of the affected animals and those in contact with them will emphasise the importance of early and correct diagnosis.

The principal cause of rapid and widespread infection is the movement of actually diseased animals or those in the incubation period.

As to the *diagnosis*—the ordinary symptoms

are too well known to require a description in a paper such as this, but once seen they are not easily forgotten.

Lesions.—The mouth lesions are generally few in number, but the vesicles are of large size—white blister-like elevations; or they may be like large flat lumps covered by an apparently normal epithelium, though pallid in appearance and easy to rupture. When the blisters are unruptured they are well defined, particularly on the dorsum or upper surface of the tongue, where they are usually situated. But they may be seen on both the hard and soft palate, the inner part of the upper lip and the dental pad.

When recently ruptured the necrosed epithelium adheres to the fringe of the ulcer as a ragged whitish membrane for a short time; the underlying surface is very red and bleeds readily with manipulation. This exposure of the naked mucous membrane causes the animal sharp pain, which it shows by smacking its lips and often shaking its head violently. The vesicles form rapidly and almost simultaneously and they soon rupture and discharge thin watery contents, leaving the bright red congested surface.

The lesions are very superficial, a simple raising of the epithelium of the mucous membrane; they heal rapidly throughout their surface and become covered with epithelium in a short time, generally inside a week or ten days.

The chief difficulty in diagnosis exists between foot-and-mouth disease lesions in their later stages, when the shreds of undetached dead epithelium have disappeared from the fringe of the ulcer, and lesions of a different nature healing more slowly and which never had a vesicular stage.

The foot lesions generally appear in three days after the vesicles form in the mouth, or in some cases earlier. Those I have seen in cattle were in the interdigital space or cleft between the hoofs and were ruptured. When the vesicles burst here and shed the whitish yellow-looking epidermis, a large red superficial sore is exposed, lameness is present and the animal lifts its legs alternatively and shakes them, owing to the severe pain. Blisters form also around the coronets and practically wherever there is a junction between skin and the horn of the foot. The vesicles, as a rule, run right through the cleft and implicate the balls of the heels, oftentimes causing separation of the hoof. Very frequently only one foot becomes affected, but in some cases two or more may be attacked.

In the sheep or pig the lesions are principally on the feet, causing lameness, the vesicles forming on the balls of the heels and around the coronary band and in the interdigital space.

In the later stages of the disease in pigs, the claws of one or more feet are shed, and there is much constitutional disturbance. In the *pig*, the muzzle and end of the snout may show lesions. In no other disease of the *sheep* does one get vesicle formation on the feet.

The present system of inspection of Irish cattle before shipment at the ports must of necessity be very carefully and critically carried out to prevent any possible chance of lesions even resembling foot-and-mouth disease escaping detection at our ports. Furthermore, all animals exported to Great Britain must be accompanied by a certificate of a veterinary officer to the effect that the animals were inspected by him immediately prior to shipment and found free from disease. These animals are detained in reception lairs at British ports for a minimum period of ten hours, during which they are examined in daylight by a veterinary inspector of the British Ministry. If found free from any evidence of disease, the animals are licensed from the landing places, under further statutory requirements, before being free to move anywhere in Great Britain.

Consequently, veterinary inspectors at the Irish ports are instructed to withhold the Certificate of Health and take steps to prevent the shipment to Great Britain of any animal found to be the subject of *stomatitis.* Frequently, lesions of "stomatitis" on the lips, mouth or tongue are met with. These lesions occasionally bear a distinct resemblance to those of foot-and-mouth disease, and, of course, a differential diagnosis must be made immediately.

Ulcerative Stomatitis usually appears on the tongues of cattle, also on the dental pads, palates and inner parts of the lips. These cases are usually isolated, although sometimes more than one are found in a lot of cattle presented for inspection. There is usually no constitutional disturbance at all and no lameness.

The lesions found on the mouths of cattle that can be said to bear a distinct resemblance to foot-and-mouth disease lesions are those found in the "vesicular" stage, but it is very rarely such cases are met with at the Irish ports.

Vesicular Stomatitis. — The lesions of "vesicular stomatitis" in cattle consist of vesicles in the mouth, usually on the tongue—a single vesicle on the tongue is, as a general rule, confined to the tip. When more than one, the vesicles vary in size from that of a sixpenny piece to that of a crown. The vesicles are more difficult to rupture than foot-and-mouth vesicles, and when ruptured the excoriation is much deeper, the papillæ are always destroyed, the lesion appears clean-cut at its edges and well defined, as if punched out. This latter is a distinctive feature in distinguishing the lesion from foot-and-mouth disease. Another characteristic difference is that the lesion heals from the edges and not from the whole of its surface, consequently the healing process is much slower. The condition is not infectious, there is no foot lesion or lameness, and no marked constitutional disturbance.

I have never seen *vesicular stomatitis in sheep or pigs*. I have, however, seen it recorded that in pigs the virus of vesicular stomatitis gives rise to a condition indistinguishable from foot-and-mouth disease. Distinct vesicles appear on the feet, involving the interdigital space, the coronary band and the heels. The animals affected show marked lameness for several days. Vesicle formation on the snout sometimes occurs.

There is, of course, a very careful inspection of all pigs for shipment, and those found lame or not able to walk from the inspection yard to the boat are promptly rejected.

Other conditions met with are as follows. First, injuries to the inside of the lips, caused by broken teeth. In these cases, one finds a thin layer of superficial epithelium has been removed, which is of little consequence. Other injuries caused by foreign bodies may be slight abrasions of the membrane, contusions of the deeper structures, wounds of the tongue, lips, gums, cheeks, palate or floor of the mouth. The symptoms depend upon the cause and the extent of the damage done. The commonest form of lesion in the mouths of cattle in my experience are ulcers in the mucous membrane of the tongue, gums or hard palate, probably due to *Actinobacillosis* or, more rarely, *Actinomycosis*. In many cases, these ulcers are confined to the hard palate, usually in the region of the molar teeth. They are usually large and irregular-looking and pink or red in colour, and the edge or border is sharply marked and not loose.

But when other differences presented by the diseased animals are taken into account, a person of experience who has actually seen animals affected with foot-and-mouth disease can seldom have much difficulty in distinguishing between these non-vesicular lesions and those of foot-and-mouth disease in the live animal.

It is quite possible, of course, that animals which had developed lesions of foot-and-mouth disease on the interior of the mouth but at the time of examination showed no external signs of it, might readily pass the portal inspector if the animals were not carefully "mouthed"—but, in my opinion, this would require to be a very early stage of the disease. Furthermore, if the disease had actually been contracted at the time of inspection or immediately before, no symptoms might be observable then and might not appear for a period of from two to ten days later.

The period of incubation is usually from two to six days and occasionally up to ten or eleven days, but the shorter time is the more common.

Some of the *other conditions* met with during the course of portal inspection are: Armagh disease, traumatic injuries of the mouth and feet, foul-in-the-foot of cattle, and in sheep, foot-rot and pustular dermatitis, which is known in Scotland as "orf."

These conditions are fairly common, and would, of course, present little difficulty in diagnosis, but one must not overlook the possibility of an animal being affected with foot-and-mouth disease and some other more common ailment.

In sheep, foot-and-mouth disease and foot-rot affect the same flock at times, but so far these conditions have not been discovered together at the ports.

Foot-rot of Sheep is a specific infectious disease of the horny parts of the feet of sheep. If the foot is examined there will either be found a swelling over the coronet or an area of the horn of the hoof is found to be soft, painful on pressure, "rotten-looking," and a variable amount of foul-smelling discharge is present. The most common site of the disease is towards the heels and on the inner side of the digit, but a great number of cases commence in some part of the wall between the two claws.

Foul-in-the-Foot of Cattle is not often met with at the port, but sometimes appears as a suppurating or necrotic lesion affecting the space between the claws of cattle or extending to the bulbs of the heels. There is also a contagious form of this disease in which several cattle show symptoms at the same time.

Armagh Disease is observed occasionally. In this condition thin layers of superficial epithelium peel off in patches from the surface of the tongue and dental pad, but no vesicles are formed and there are no foot lesions or constitutional disturbance.

Contagious Pustular Stomatitis appears as an ulcerative condition of the limbs, often accompanied by a scabby condition of the lips and face.

Many animals are rejected owing to the conditions associated with the marketing and transport having a debilitating effect on them. Cattle from remote fairs often arrive physically exhausted after long journeys by train.

Others are rejected under the headings: wounds or injuries, amaurosis, advanced pregnancy, lameness, fatigue, debility or infirmity, and sheep for *scab*.

(c) Sheep Scab (or) Psoroptic Mange

This disease was made one of the scheduled diseases under the Diseases of Animals Acts because of its power of starting fresh infection on contact with other sheep.

It is caused by the *Psoroptis ovis*, which is the causal parasite of the common body sheep scab. This parasite lives on the skin of sheep, and if the animal is severely attacked it rapidly loses condition and the wool becomes of little or no value.

Scab is liable to occur in all parts of the body covered with wool, and the parasite multiplies very rapidly, laying its eggs on the surface of the skin or under scabs.

There is a very efficient inspection of sheep

at the port. Each sheep is carefully handled, and any showing evidence of pruritus (which is recognised by the animal turning the head round, when the area affected is scratched and the lips move as if nibbling at something) are closely examined for lesions of scab. The appearance of these lesions varies much according to the length of time the sheep have been affected.

In fresh lesions, one finds, on separating the wool, a small red spot or pustule. Yellow wax-like material (the yolk) forms at the base of the wool fibre and here the parasite may easily be found. The lesion, being very itchy, causes the sheep to scratch and rub itself against fences. Later the wool becomes dry and is cast off, and the skin becomes thickened and ulcerated and forms into yellow scabs. The parasite is often found at the edges of the dry scab-like patches, and may be seen with the naked eye or with a magnifying lens as a grey speck, moving along a wool fibre. Scrapings of the lesion, when examined under the low power of the microscope, reveal the parasites for definite diagnosis.

There was a considerable number of cases of "scab" detected at the Dublin Port last year, particularly during the summer and autumn months, and very occasionally cases were discovered at the British landing places.

As sheep scab is a notifiable disease, any case of scab found at the port is immediately reported to the local authority veterinary inspector, the sergeant in charge of police in the district and the Department of Agriculture.

The sheep are detained and isolated until handed over to the local authority. Usually the affected sheep are slaughtered, and if the in-contact sheep are not slaughtered they are double-dipped in a suitable sheep dip in the presence of the inspector of the local authority, and, if necessary, otherwise treated. Thorough double-dipping, in order to kill the parasites which are hatched from eggs not killed by the first dipping, is the only effective means of dealing with scab, short of slaughter and destruction of the skins.

In some instances, it is difficult to trace back these cases to the farms from which the diseased animals had been moved. But the finding of these cases of scab so frequently at the port, and the danger to be apprehended from the spread of the disease through unreported outbreaks in the country, emphasise the necessity for a uniform and energetic enforcement by the local authorities of the regulations for the compulsory dipping of sheep both in the summer and autumn periods in an approved sheep dip.

It is a notable fact that sheep scab is now entirely non-existent in the great sheep-raising country of Australia owing to the determination of the farmers to eradicate it by thorough periodical dipping. They recognised that the success of their industry depended on the eradication of the disease—consequently they are now reaping the benefit of this procedure in the world's markets to-day. Their flocks are healthy and the quality and quantity of the wool is excellent and commands top price.

The following conditions may be mistaken for sheep scab as they are usually accompanied by pruritus when the sheep is being examined:—

(1) The Presence of Keds.—The *Melophagus ovinus* (the sheep ked) is probably the commonest and most widely known of the parasites which attack sheep. It is dark brown in colour and about a quarter-of-an-inch long. It is a blood-sucking parasite and causes great irritation and loss of vitality if present in numbers.

The sheep bites and scratches at the pest, and the keds are spread by contact of one sheep with another.

(2) Sheep Ticks and Lice (*Trichodectis* and *Hæmatopinus*).—The latter are fairly common, and cause damage by irritation and itching. Lice are chiefly found in lambs or in sheep in poor condition. Ticks are found rarely at the port although very prevalent in other countries.

(3) Maggots.—The larvæ of certain flies (the green-bottle fly especially) are a source of great trouble during the summer months, causing extensive lesions on the skin. The flies deposit their eggs in clusters amongst the wool, and the resulting maggots feed on the live flesh of the sheep. These wool maggots are a very serious pest and cause great destruction of skin in the area affected. The lesions are usually situated in front of the tail or wherever the wool is soiled in this region.

These, with *scalds,* from using dressings or dips too strong when treating lesions of scab or maggots, often cause delay in the sheep inspections. But a differential diagnosis from scab can be made after some experience and with the aid of the microscope.

CARRIAGE OF LIVESTOCK BY SEA

The carriage of livestock by sea is controlled by the Transit of Animals Order of 1927, in which are prescribed definite specifications for fittings for animals on ships, and these have been found effective in safeguarding animals carried against avoidable suffering during transport by sea.

These vessels are carefully inspected by the veterinary officers, who must make themselves acquainted with all cattle-carrying vessels plying from the port, with regard to their accommodation for animals on board, lighting, drainage, ventilation, etc.

So far as the actual transport of Irish cattle by sea to cross-channel ports is concerned, the conditions seem as good as it is practical to make them, the number of casualties in the year being very few. The total casualties which occurred amongst the *1,970,917 animals* landed

in Great Britain and Ireland during the year 1930 was only 0·05 per cent. of the animals carried. The percentage of cattle which died or were injured was 0·025, of sheep 0·02, of pigs 0·16: this must be regarded as very satisfactory.

The complaints about sweating and overcrowding cattle which formerly were seen on the Irish cattle boats have been extremely rare in recent years. All vessels carrying animals are now suitably ventilated, and in the case of newly-fitted vessels each enclosed compartment must have mechanical means of ventilation capable of changing the air in the compartment completely once every three minutes. Overcrowding of the animals is prohibited by Art. 3 (xxiv) of the Transit Order and by strict supervision.

No case of overcrowding has been reported for some years and the cattle are landed in Great Britain in good condition.

There are about 30 vessels fitted out for the conveyance of animals from the Port of Dublin. At present all of these vessels are not sailing regularly, but during normal times there are usually about 40 sailings in the week, and on Thursday during the busy season 12 or 13 sailings carrying over 10,000 animals.

One of the finest cattle-carrying boats in the world is the s.s. "Lady Meath," the property of the British and Irish S.P. Company. This boat can carry 800 to 900 cattle and 1,500 to 2,000 sheep in a voyage, and plies from Dublin to Birkenhead and Preston ports. She carries the animals in four decks, and does the voyage to Birkenhead regularly in about ten hours at the rate of twelve knots per hour. There are several other boats equally good, but the "Meath" has the largest accommodation for animals.

Although the aggregate losses amongst animals carried across the Atlantic from Canada to Great Britain have been small compared with the total number of animals so carried, still the percentage of losses in 1930 was 0·15, which is higher than in shipments from Ireland to cross-channel ports.

The year 1924 saw the opening of a direct trade in the export of animals with the Continent. In connection with this trade the department gave particular attention to the question of the suitability of the fittings of the vessels, and of the conditions generally that should obtain on the vessels in order to secure the humane transit of the animals on the long sea journey to the port of Antwerp, Belgium.

Moreover, special and stringent precautions were taken to guard against any risk of the introduction of disease on each occasion of the return of the vessel to Dublin after the landing of the animals at Antwerp.

Before shipment, all animals are subjected to a strict veterinary examination, so as to ensure that no animal is shipped that would be likely, by reason of infirmity or other cause, to undergo unnecessary suffering either on the sea journey or on disembarkation.

Although about 50 per cent. of the horses exported are intended for slaughter on arrival, I may state that there are very few casualties, as we keep the required standard of fitness to travel decidedly high. For the seven years 1925-1931 there were 11,923 horses shipped, besides cattle, sheep, mules, asses and goats, to the Continent, and in the *year 1931 alone* there were 1,873 horses, 1,667 cattle, 90 asses, 45 goats and two mules—a total of 3,677 animals shipped.

I travelled on board to Antwerp with a consignment of 72 horses, and although the voyage was not pleasant, all of these animals were landed safely and in good order after three days' journey at sea. All that could be done to lessen the sufferings of the horses on the voyage had been done. The Society for the Prevention of Cruelty to Animals has paid high tribute to the veterinary inspectors and also to the shipping arrangements for the animals.

The Government have this year opened up a trade with Germany and already several consignments of cattle have been carried safely to the port of Bremen in German ships.

IMPORTATION OF ANIMALS

The landing in the Free State of cattle, sheep, goats and swine continues to be prohibited. On a few occasions importations were permitted from Scotland, England and Wales of animals intended for breeding purposes, and these were imported under stringent precautionary conditions against the introduction of disease.

I may state, in conclusion, that the construction, equipment and accommodation of the stockyards at the Port, on the whole, are now fairly satisfactory, and the facilities for shipment have been greatly improved within recent years.

Discussion

Mr. A. F. O'Dea, in opening the discussion, said: Mr. MacClancy's paper is of interest to the meeting not only because of the many useful hints he has given on the diagnosis of tuberculosis of the udder, foot-and-mouth disease and sheep scab, but also because of the first-hand description of one of the many duties of a State veterinary officer.

I congratulate Mr. MacClancy on being able to condense so wide a subject as portal veterinary inspection within the compass of one paper. Naturally there are a few omissions, which, from the point of view of the ordinary veterinary inspector, I would like to repair. When speaking of lameness, injury, fatigue, blindness and advanced pregnancy, the essayist has simply stated that the presence of any of these conditions demands rejection. He does not, I am sure, intend to convey to you that shipment is prohibited when these defects are present in only a modified form. If that were so the work of the veterinary inspector would be comparatively easy. The question the latter has to decide is whether,

owing to cause, stage of development, extent or location, unnecessary or undue suffering would accrue to the animal in transit. For example, in mild cases of laminitis (which is common in stall-fed cattle walked from the market to the detention yard) unless lameness is marked and provided fever has abated and effusion is no longer taking place between the sensitive and horny laminæ, shipment may be permitted. Similarly in cases of injury one uses one's discretion, depending on the extent of the injury, whether it has or is likely to become septic and whether it is so situated as to be likely to become bruised and cause suffering. Blindness may be of recent or remote origin. Recent injuries to the eye usually require detention for treatment. Corneal opacity, glaucoma or atrophy of the eyeball with total loss of function are frequently met with. Cataract (apparently hereditary) is common in cattle. It may be unilateral or bilateral. Amaurosis, with no visible alteration in the organ, is occasionally met with. If pain is absent and only one eye affected exportation is permitted provided the animal can be accommodated on board ship in a separate pen.

Advanced pregnancy is the *bête noir* of the veterinary inspector. The Transit of Animals Order states that shipment is not to be permitted "if the calving of the cow on the vessel or on landing is reasonably probable." Now, what does "on landing" mean? It must be interpreted as covering the normal period of the voyage, the prescribed ten hours' detention at the port of disembarkation, *plus* a possible railway journey of seven or eight hours from that port to its destination. Long experience is necessary in forming a sound judgment as to whether a cow will carry, but excitement or rough weather may render one's judgment fallacious. In the detention yards, too, one has to be always on the *qui vive* for these cases, because a wily shipper, when things are rushed, will sometimes have an advanced case milked out, changed from among the springers and placed in the middle of a lot of milkers where the condition is likely to be overlooked. The dealers prefer to have them landed when on the point of calving, because they are then in greatest demand.

Generally when dealing with all these cases one has to carry out one's first duty as veterinary surgeon, which is to prevent unnecessary suffering, while at the same time one is reminded that rejection entails considerable expense in the way of droverage, carriage, etc., on the owner.

With regard to induration of the udder, most of the cases met with during portal inspection are in fat cows that have been dried and eliminated from herds owing to a previous attack of mammitis, occlusion of a teat or similar cause. The indications which point to induration not being tuberculosis are scar on the integument, discharging wound and "string" or "pea" in the teat duct. The nature of the secretion is also a great help. A purulent secretion can usually be taken as being non-tuberculous. It is only in advanced tuberculous mastitis that there is a noticeable physical change in the character of the milk. In this condition the milk becomes first thin, watery and deficient in fat. Later, when advanced, it becomes converted into a turbid whey-like liquid, often greenish-yellow in colour, and strings of a thicker purulent looking material. At the same time, while we can generalise about the nature of the induration and the character of the milk, it is unwise to be dogmatic, particularly when dealing with cows in milk where deviations from the characteristic are occasionally met with.

The extermination of sheep scab from Australia was a feat which no one who has not been through the bush can fully appreciate. Its elimination was worth while because of the value of the fleece. One hundred years ago Merino wool was fetching from 3s. 6d. to 5s. 6d. per pound in many parts of the continent of Europe, and although it is now of even finer quality its value has decreased, owing largely to the introduction of artificial silk.

You will have noticed that the percentage of loss in transit between Ireland and Great Britain is very small. It would be almost infinitesimal but for the fact that fat pigs fed on the intensive system are notoriously bad travellers.

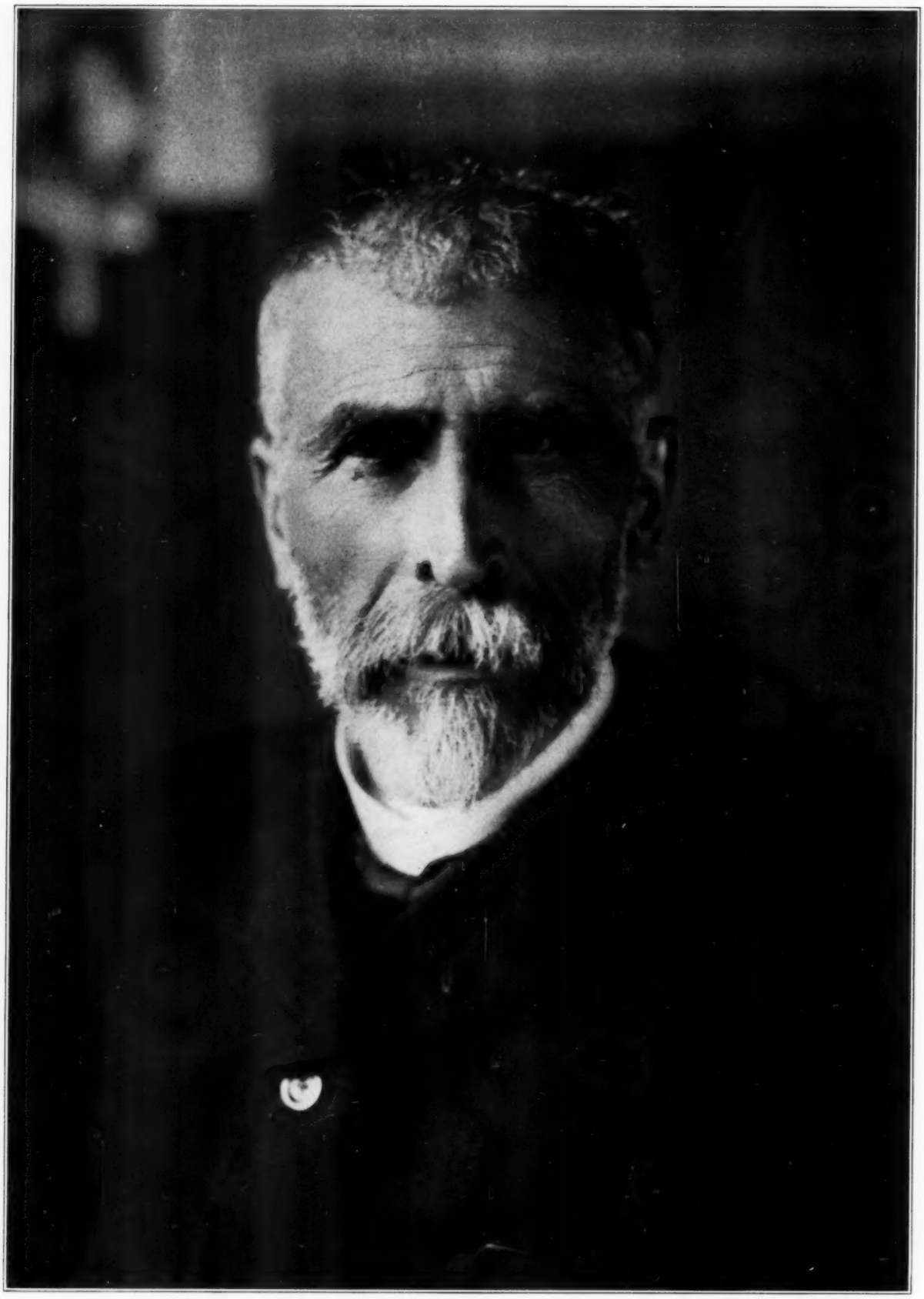
I beg to thank Mr. MacClancy for his very interesting paper.

Mr. J. H. Norris, Chief Veterinary Inspector, said he was proud of his staff and thanked Mr. MacClancy for his excellent paper. Veterinary inspection at Irish ports had greatly improved in recent years, for which fact the veterinary staff claimed full credit. A portal veterinary inspector, to be efficient, must be an expert in the contagious diseases of animals. Animals for shipment passed rapidly from the farmstead or fair through the port to the boats and the veterinary inspector had not on occasions much time for the essential individual examination. He must, therefore, have a keen eye and possess quick judgment. In addition to his veterinary training he must have a thorough knowledge of the law relating to the control of animal diseases and the transit of animals, together with the equipment of cattle-carrying boats and the artificial lighting of stockyards. When a veterinary inspector was engaged on portal duty at an Irish port he was aware that the animals which he certified for shipment would be retained at a British landing place for at least ten hours and be subject there to a rigid examination by the veterinary inspectors of the British Ministry, and that he would be likely to hear in due course of any complaints arising from the British examination. In that connection he was glad to say that no serious complaint had ever been received.

On occasions it might be very difficult to distinguish between the lesions of foot-and-mouth disease and vesicular stomatitis, and it might be necessary to await developments before giving a final opinion. Vesicular lesions in the mouth and feet of cattle and sheep other than those of foot-and-mouth disease or vesicular stomatitis were also met with and required careful examination and inquiry before a definite diagnosis was arrived at. Sheep scab was still with us, but there was no reason why the disease could not be stamped out if owners wholeheartedly co-operated with the authorities and dipped efficently; the trouble appeared to be that sheep owners collectively did not consider the disease of sufficient importance to make a determined attempt at eradication; he understood that it was only when the disease assumed such proportions in Australia as to threaten the very existence of sheep farming there that owners were more or less compelled to take drastic co-ordinated action which led to complete eradication.

Mr. P. F. Dolan congratulated Mr. MacClancy on his paper and said that he recognised the importance of the work carried out by the veterinary officers of the department: for example, cases of sheep scab detected at the port were traced back to the farm.

With regard to tuberculosis of the udder, Mr. Dolan said he had a fair experience in diagnosing this form of the disease, and he found that microscopic examination was necessary. The biological test revealed the presence of the disease in some cases in which it could not otherwise be con-



DR. EMILE ROUX

firmed. The supramammary lymph gland was not of much use as a guide in diagnosing tuberculosis of the udder. When this gland was tuberculous the udder was often free from the disease. In many cases of tuberculosis of the udder the supramammary gland was not affected. Tuberculosis of the udder might be accompanied by acute or sub-acute mastitis. He had met with such cases. There might be acute tuberculous mastitis, and in one instance there were myriads of tubercle bacilli in discharge from the udder.

Mr. Sean O'Donovan, in complimenting Mr. MacClancy on his paper, said it was very enlightening as to the activities and responsible duties of the veterinary inspector. It was often said that one half of the community did not know how the other half lived, and certainly he felt that one section of the profession did not know the trials and difficulties of the other. He considered that the paper would be, for this reason alone, of great interest to the practitioner.

Inspection for the presence of foot-and-mouth disease was a matter of grave importance, which rested on the inspectors' shoulders. It concerned all sorts of regulations as well as export examination of livestock. Fodder and peat moss, etc., were not, in his opinion, the media for transmitting foot-and-mouth disease infection. It was chiefly introduced through imported meat, and this accounted for Ireland's freedom from the disease. Early lesions of sheep scab might escape detection even by the most careful observer. Pruritus caused by lice might easily be mistaken for scab and require close examination of the skin to detect the lice. There was no reason why we should not eradicate scab from Ireland. He thought that the term "stringy" applied to milk or secretion from a tuberculous udder was incorrect. The milk was very often quite normal in appearance. When getting watery-looking or having reached the typical yellow fluid stage, small flakes were the most that appeared.

Mr. P. J. Howard congratulated Mr. MacClancy on his paper which, he said, should be published in the public press to show the importance of the work done by the veterinary profession.

Mr. R. J. Roe (Cyprus) said it afforded him great pleasure to be present to hear the reading of Mr. MacClancy's paper. He was convinced that the inspection at the Dublin Port was as good as it could be. For economic reasons it was essential that portal inspection should be efficient in order to obtain facilities from importing countries. The authorities in Cyprus recognised this and followed on the lines adopted by Ireland and Great Britain, with the result that facilities are now given, for the importation of Cyprus cattle into Egypt, Palestine and other places, which were not granted heretofore.

The President, Mr. Mulcahy, congratulated Mr. MacClancy on his paper and the veterinary staff of the department on the clean bill of health of the animals of the Irish Free State. There were only four outbreaks of foot-and-mouth disease in Ireland within 40 years and every outbreak was handled most efficiently by the Veterinary Department, helped to some extent by the local veterinary inspectors. The last outbreak was controlled within one month.

Sheep frequenting woods where bracken was in abundance were often infected with ticks inside the thighs, which caused pruritus.

The work done by the veterinary officers of the department was most important.

Mr. MacClancy, on being called upon to reply, thanked all the speakers for their kind references to his paper and dealt in detail with their remarks, in so far as they required a reply.

Obituary

EMILE ROUX

1853-1933

(An Appreciation)

Although I knew of the recent illness of Emile Roux it was rather with astonishment that I learnt of his death, for the chronic pulmonary disease which troubled him for nearly 40 years had, on several recent occasions, given serious cause for anxiety on his behalf. He lived, as it were, by a miracle from day to day, but his frailty in no way deterred him from fulfilling the task which he had set himself of carrying on the flame lit and passed on to him by "le Mâitre" some 30 years before. He died in his humble abode, the room above the hospital of the Pasteur Institute, at 5.30 p.m. on November 3rd at the age of 80 years, surrounded by his collaborators.

The main facts with regard to his life may be referred to very briefly. Pierre-Paul Emile Roux was born at Confolens (Charente) on December 17th, 1853. He went to school there and later at Aurillac and Le Puy (Haute Loire). He was a medical student at the University of Clermont-Ferrand (Auvergne). There he attended the class of biological chemistry of Professor Duclaux, who soon picked him out as a student of remarkable intelligence and studiousness. Duclaux, a pupil of Pasteur, persuaded him to become his assistant and demonstrator and later to follow him to Paris. He continued his studies in Paris as assistant at the hospital, l'Hôtel Dieu. He was also for a short time at the military hospital of Val-de-Grâce. On the recommendation of Duclaux he became, probably about the year 1878, the assistant of Pasteur in his laboratory in the garret of l'Ecole Normale in the rue d'Ulm. He soon became impregnated with the enthusiasm of Pasteur and his collaborators, with whom he was in close association in work on an almost infinite variety of subjects up to the time of Pasteur's death in 1895.

He received his degree of Doctor of Medicine in 1883 for a remarkable thesis of 55 pages entitled "Des Nouvelles Acquisitions sur la Rage."

When the researches on anthrax vaccination had been completed and vaccination against rabies was beginning to be more generally applied, the need of larger laboratories became apparent to all. Pasteur, weakened by illness, delegated to Roux the supervision of the construction of the Pasteur Institute in the rue Dutot which was inaugurated in 1888. Roux was nominated "Chef de Service" and displayed an extraordinary energy in the organisation of the laboratories. Since 1889 over 3,000 post-graduate medical and veterinary students

from all over the world have followed "Le Cours de Microbiologie," giving theoretical and practical instruction and instituted about this time under Roux's direction. In 1895 he was made an assistant director of the Pasteur Institute and in 1904 he succeeded Duclaux as director, in which position he remained up to the time of his death.

In 1896 he replaced Pasteur as member of the Académie de Médicine. In 1899 he was elected a member of l'Institut de France (Académie des Sciences). He was elected a foreign Fellow of the Royal Society of London in 1913 and was awarded the Copley Medal by that body in 1917 "on the ground of his eminence as a bacteriologist and as a pioneer in serum therapy."

He shared, in 1895, with von Behring the 25,000 franc prize given by the Académie de Médicine and the Alberto-Levi 50,000 franc prize given by l'Institut de France, for their researches on diphtheria toxin and antitoxin. He received La Grand Croix de la Légion d'Honneur and on his death the Government, as a token of appreciation of the honour he brought to France and his services to humanity, accorded him a national funeral and official memorial service.

As Dr. Guérin, the collaborator of the late Professor Calmette, has said, "one would have to review the whole of pathology, animal as well as human, in order to give a list of the studies of Emile Roux." The following landmarks in bacteriological history which he helped to set up might, however, be mentioned: Nocard and Roux (1887) first introduced glycerin agar as a medium for the cultivation of the bacillus of tuberculosis; Roux and Nocard (1890) first demonstrated the virulence of the saliva of dogs infected with rabies; Roux (unpublished observation communicated to Remlinger, 1919) studied the viricidal action of ether on the virus of the same disease, which has led to the now well-recognised methods of Remlinger and Alvisatos of rabies vaccination for dogs and man. The part he took in the classical experiments on vaccination of animals against anthrax (*v.* the collected papers of Pasteur, Chamberland and Roux in "Le Charbon et la Vaccination Charboneuse," by Chamberland, 1883), and in researches on rabies is well known. He also worked on fowl cholera with Pasteur and on cattle plague when in Egypt in 1883. Nocard and Roux (1898), with the collaboration of Borrel, Salimbeni and Dujardin-Beaumetz were the first to demonstrate the causal organism of contagious pleuro-pneumonia of cattle. Roux and Borrel (1898), on injecting tetanus toxin into the brain itself, produced "cerebral tetanus"; the results of their observation which indicated a special effect of the toxin when brought into contact with the protoplasm of the nerve cell led to a fuller understanding of the previously obscure pathogenesis of the disease. He also published papers with Nocard on sheeppox (1889), and with Vallée, Carré and Nocard (1921) on foot-and-mouth disease. Although various experiments had been previously made from time to time by different observers, in some cases with reported successful results, it is to the papers of Metchnikoff and Roux (1903-6) that we owe most of our knowledge of the experimental transmission of syphilis to animals. He published a detailed review, "Sur les Microbes dits 'Invisibles,'" in 1903.

In 1883, with Straus, Nocard and Thuillier, he volunteered to go to Egypt to study cholera. Unfortunately for the outcome of their researches, the epidemic which was raging there died down. At the end Thuillier, who was nursed by Roux until the end, died of cholera, and this was a great blow to Roux and to the team. Koch, who later published his discovery of the vibrio of cholera, was also in Egypt at this time.

As regards his personal researches, one must consider separately his fundamental work on toxins and more especially on that of diphtheria toxin. Roux and Yersin (1888-90), working in collaboration, demonstrated the specificity of the bacillus discovered by Klebs (1883) and cultivated by Loeffler (1884). They pointed out the necessity of demonstrating the bacillus in the diagnosis of diphtheria, and they were the first to give a detailed description of the technique, which has been followed, with slight modification, by all subsequent workers. They conclusively demonstrated that the effects of the bacillus were produced by a toxin and were the first to prepare this toxin by filtration of cultures in broth. The discovery of diphtheria toxin led to that of the antitoxin by Behring and Kitasato. Following up his work and that of von Behring, Roux conceived the idea of using horses for the production of antidiphtheritic serum. In September, 1894, Roux, in a memorable address at the International Congress of Hygiene and Demography at Budapest, gave the results of the serum treatment by himself, in collaboration with Martin and Chaillon, of several hundreds of children at the Hospital for Sick Children in Paris. The work had been carried out so scientifically and brought such conclusive evidence of the value of the treatment that it gave at once a wide notoriety to serum treatment. His studies with Vaillard (1893) on tetanus and tetanus antitoxic serum were no less important. One can say without exaggeration that all modern serum treatment originated from Roux's classical work on microbic toxins. According to René Valléry-Radot, Pasteur, who listened to the exposition of the work by Roux at Lille in May of the same year, "écouta son élève avec une émotion admirative. La rigueur des expériences et la beauté du but l'enthousiasmaient. Lui qui

avait dit 'Il faut épuiser les combinaisons de façon à ce que l'esprit n'en puisse plus concevoir aucune'—et qui disait encore à tout travailleur—'Méfiez-vous surtout d'une chose: la précipitation dans le désir de conclure. Soyez à vous même un adversaire vigilant et tenace, songez toujours à vous prendre en faute'—était heureux d'entendre l'éxposé méthodique de la manière dont ce grand problème avait été abordé et résolu."

The wide appreciation of Roux's great service to humanity in this field was simply but effectively signalised by a tribute in the form of a wreath placed on his coffin with the inscription "Au grand Savant—d'une maman."

The last work which he published was that with Metchnikoff on syphilis already referred to. Since that time all his mind was given, all his energies directed to aid, to direct and to give his invaluable counsel to the numerous research workers at the Pasteur Institute. In spite of his wonderful contributions to science, one can say that his influence on bacteriology and medicine has greatly exceeded his own personal researches. Despite his precarious health he used his energies from morning till late into the night for the organisation of the Pasteur Institute, of which he had supervised the building. His interests were not confined to the Institute. He presided over numberless meetings and committees and he was the arbiter of all scientific matters relating to disease, health and hygiene, for he became also Président du Conseil d'Hygiène de l'Etat, and was the chief spokesman whenever the welfare of humanity was at stake.

Roux may very rightly be called the Saint Francis of bacteriological science. He had certainly espoused "the Lady Poverty," for all the money he received in prizes was given to the Institute; he wished nothing for himself. He claimed a salary as director smaller than that of the humblest worker. He was offered the Osiris prize for his researches; he refused the money for himself. M. Osiris wished to meet this extraordinary man, and he was so impressed with Roux's character and erudition that he decided to give a large sum of money to the Pasteur Institute. Roux was completely "désintéressé," which expresses a summation of qualities for which we have no completely satisfactory word in English.

Those who did not know Roux cannot conceive the complete detachment from all worldly vanities which he exhibited. Distinctions and honours were showered upon him by all the scientific societies of his own country and by foreign Governments and societies. In the small "bureau de l'economat," where he was accustomed to receive visitors from all over the world, these decorations, honours and medals were found lying about, but he attached no importance to them.

There are few men who have imposed more universal respect. He was extremely upright and of exceptional probity in all his scientific work. He was willing to receive all suggestions, uphold all discussions with one idea in view only, that of arriving at the truth. As a speaker and imparter of knowledge he was wonderful. He knew how to expose in the simplest style the most abstruse and difficult subject and make it clear to all, and his literary style was equally pure and explicit. He astonished all who met him by the justice of his remarks and the immense knowledge he possessed not only of those subjects on which he had worked, but on many things exceedingly remote. Indeed, there were few subjects upon which he could not say something *à propos*.

His extraordinary activity, the energy he displayed in defending his ideas, were in marked contrast to his feeble appearance. "One would have thought that a powerful spirit agitated that debilitated body."

What he wrote about his late chief, Duclaux, would do equally well as his own epitaph: "His authority was respected because it depended not on his position as director but on the qualities of his mind and his heart. All those who have frequented the Pasteur Institute will understand our great grief, for they know the sentiments of the workers of this Institute towards the director. These sentiments were those of that confidence and respect which only a true chief can inspire."

The kindness of Roux was unlimited. Under his rough exterior he tried sometimes to mask his kindness, but he did not deceive those who knew him. He was like a confessor; he knew the joys and misfortunes of all those working at the Institute; he was the good father of the big "famille pastorienne," which included all those workers from other countries who came under his care.

As a director he was inaccessible by flattery and ever remained the real chief. He encouraged, guided and upheld the workers and stimulated them to new efforts. "C'est très intéressant, vous avez bien travaillé, il faut continuer." He especially encouraged and liked to see enthusiasm in young workers and nothing gave him greater pleasure than when an interesting piece of work was brought to him by one of them in order that it might be communicated to one of the scientific societies. He was possessed undoubtedly of a very well-developed psychological power which enabled him to know exactly the value of men and things. He knew when to give the young worker his independence and to prevent his individuality being suppressed.

Roux is one of those whose scientific work and life-long energies contributed most to the extinction of epidemics and bacterial diseases.

(*Concluded at foot of column* 1, *page* 1267.)

The Veterinary Record

November 25th, 1933.

FRACTURES AND DISLOCATIONS IN SMALL ANIMALS

IN this issue is published the paper on the above subject presented by Professor J. McCunn at the Llandudno Congress of the Association, together with a report of the discussion which ensued. That the subject is one of considerable concern to clinicians is evidenced by the great interest aroused.

In his opening remarks the writer deplores the scarcity of veterinary literature on the subject, and we have no doubt that it was this fact which led to his tackling the subject in a systematic and somewhat academic fashion. For this he is to be thanked and congratulated, for he has provided a sound and solid base upon which to build future observations.

The difficulties the writer of such a paper encounters must be appreciated. The terms of reference are so broad, and the amount of material to be considered so large, that the author cannot, in the space at his command, adequately deal with any single point. Professor McCunn has reviewed the subject in a masterly fashion. This promotes support of the suggestion made by Captain E. Brayley Reynolds, when opening the discussion on a previous paper, that in future the Provisional Committee shall limit the terms of the title. There will be many who will wish that, in the paper under review, the principal speaker had been given the opportunity of dealing *in extenso* with the more difficult orthopædic problems which the practitioner encounters.

Of the common fractures in the dog, the one which undoubtedly presents the greatest difficulties is that of the femur. Effective reduction and immobilisation may present insuperable difficulties. In fact, many are inclined, not unreasonably, to congratulate themselves if union is effected at all, deformity being considered irremediable. We would welcome detailed statistics of the outcome of treatment of this condition.

Referring to dislocations, the hip is the joint most frequently involved. It is a point which has recently received considerable attention at meetings of our Societies. Professor McCunn has given an excellent review of the points by which the condition may be diagnosed. It is pointed out that the commonest cause is the street accident.

A point arises which was not dealt with, and that is, in what proportion of these cases is there fracture of the acetabulum? Prognosis will undoubtedly depend upon the degree of joint injury present. It is surprising how easily a puppy can dislocate the hip joint as the result of a simple slip or fall. In these cases the degree of injury to the joint is small, and once reduction is effected prognosis is good.

The other common dislocation is that of the patella. In addition to the breeds referred to in the paper, the bulldog and Pekingese, it is particularly common in the toy Pomeranians and toy Yorkshire terriers; in fact, it is often referred to as "popping patellæ."

In intractable cases Professor McCunn states that operation, by shortening and mending the injured lateral ligament, is useful. Figures as to the results of this operation would serve as a guide to prognosis.

It is accepted by all that the commonest cause of fractures in the dog is the street accident, and the publication of a discussion on the subject makes the moment opportune for an appeal to dog owners. As veterinarians, we are greatly distressed at the enormous amount of suffering occasioned to dogs as the result of motor accidents. Modern motor transport has assumed such proportions that the time has arrived when no dog should be allowed to roam the highways unattended. It is reasonable to suggest that such an animal is bound, sooner or later, to become involved in a street accident. Whilst our concern is chiefly for the dog, sight must not be lost of the fact that such an animal is a potential source of danger to human life. However skilled our profession may become in orthopædic surgery, a large number of these cases, even if avoiding death, must, from the very extent of their injuries, become crippled for life.

It might be remarked, in conclusion, that hysteria on the part of the owner after such an accident in no way improves the animal's plight; rather it increases it by hampering the veterinarian. The point it is wished to impress is, that the exercise of a little care and forethought would have prevented its occurrence.

---

but he is also one who will continue to live in the hearts of all those who knew him and loved him.

I. A. Galloway.

National Institute for Medical Research, London, N.W.3.

November 15th, 1933.

Professor A. W. Ashby, when visiting two agricultural discussion societies in Northumberland, said that English cow beef was increasing in quantity and at present comprised almost 56 per cent. of the total meat, with steers and maiden heifers accounting for only 40 per cent. It was essential, if the best grades of British beef were to be offered to the public, that something should be done with cow beef. He thought it should be processed, to give the first-class article a fair field.

Clinical Reports

A DIFFICULT CALVING*

W. T. HEWETSON, M.R.C.V.S.
Brampton, Cumberland

The subject was a Galloway cow, calving her third pure-bred calf, which had been carried 18 days over time. When at last labour commenced, it was found that although the genital passage was normal, and also the presentation, the large size of the calf promised a difficult delivery. With the aid of a block and pulley the owner had been able to effect delivery as far as the shoulders, but further than this progress appeared impossible, and I was requested to come. Upon examination I found that the hand and arm could be introduced into the birth canal and forward to the pelvic brim, but at this point the tips of the fingers only could be squeezed between the maternal pelvis and the bulging buttock of the calf. The buttock of the fœtus seemed, as it were, tightly rivetted against the pelvis of the dam.

I fomented the external genitals with hot water and soap, and, so far as space would permit, lubricated the canal and the calf copiously with lard. The cow was placed under chloroform and traction applied to the calf, using the block and pulley, with, however, no result. The hocks of the dam were now securely bound together by means of a rope, to which was attached the lower end of the pulley. The other end of the pulley was made secure to the beam above. By this means the hind quarters of the cow were elevated about two feet from the ground, and the calf was pushed forward as far as possible. I was then able to reach beyond the maternal pelvis to the calf's buttocks, which were lubricated afresh with lard. The cow was now lowered and traction again applied in a horizontal direction, but again with no result. It appeared to me that the calf's haunch bones were tightly jammed against the maternal pelvis, and so long as the relative positions of dam and calf remained unchanged, successful delivery was a physical impossibility.

A piece of rope was now tied firmly around the thorax of the calf, and attached to the pulley above. The hind quarters of the cow were elevated from the ground by traction on the calf, as this seemed the only method of altering their relative positions. Two men, one standing at each side of the calf, applied lateral rotating movements to the calf by taking hold of the fore-legs. A third man, by grasping the cow's hind legs, partially turned or twisted the cow in the opposite direction, in an endeavour to obtain the widest radius of action. I attended to the chloroform. As a result of the lubrication the calf turned easily, and when it came into its critical position slipped from the passage, successfully delivered. The hind quarters of the cow sank to the ground.

The dam was recumbent for several days but, after receiving stimulants and other medicine, recovered uneventfully. Her calf, of enormous size, was dead. It was what in this part of the country is called a " double-layered " calf. The shoulders and buttocks are of huge dimensions, quite out of proportion, and the thick skin is covered with a dense coat of hair. Such calves are chiefly met with amongst Galloways, and if not dead at birth are difficult to rear. By way of comment, I may add that this cow might have been a suitable subject for spinal anæsthesia, since chloroform is liable to make the unprepared bovine vomit. With regard to the embryotomy saw, I scarcely think it could have been applied.

* Forwarded through Captain W. L. Stewart, M.R.C.V.S., *Veterinary Record* Representative, North of England Division, N.V.M.A.

* * * * *

IMPERFORATE HYMEN

W. A. CAMPBELL, M.R.C.V.S.
Boroughbridge, Yorks

About a month ago I was called to " calve a heifer." On arrival, I found a dark roan heifer, in good condition, straining heavily and showing all the symptoms of having come down to a normal calving. The pelvic ligaments were well relaxed and the lips of the vulva large and natural-looking.

On introducing my hand I found that there was no entrance to the vagina, and, using a good deal of force, I failed to break through the much thickened hymen. I hesitated to employ a knife as I was not at all sure whether there was a calf inside or that I was dealing with a case of white heifer disease. However, after considerable force and tearing of the septum, I got a copious flow of fluid, white and creamy, and nearly odourless. The herdsman estimated the quantity at eight to ten gallons. He had thought that for a few weeks previous she was carrying twins, but she had very little body when we finished with her, and there was no sign of a calf.

To me the case, as one of white heifer disease, presented unusual features. The quantity of pus present could not all have been lodged in the vagina: I could not reach the os uteri to find out whether the uterus was involved or not. I saw the animal two days after, when she was doing well in every way. I advised pushing her on and in a few weeks selling her for beef.

Ten days later I again received an urgent summons. She had been found that morning.

straining more than before and presenting a more sickly aspect. On opening up the aperture previously made through the hymen there was a great gush of urine and gallons of clear urine came away, evidently all having been lodged in the vagina. She showed all the symptoms of uræmic poisoning and died the following day. Apparently what had happened was that either I had ruptured the urethra in front of the hymen when first forcing a way into the vagina, or she had done it herself with straining, and she had been urinating into the vagina for nearly a fortnight. The herdsman acknowledged that he had never seen her pass any urine, but thought that, as she was doing so well, she must be all right; he never saw anything wrong until the morning he sent for me. He is an experienced man and I have always found him sharp enough at detecting an ailing animal.

* * * * *

FISTULA OF THE RUMEN

W. A. CAMPBELL, M.R.C.V.S.
Boroughbridge, Yorks

Some time in July I was asked to look at a twelve-months-old bullock with a deep punctured wound between the fifth and sixth last ribs on the left side. Chewed food and some liquid were constantly coming through the opening. The owner said he did not know how long the wound had existed, but that a week before he had noticed a damp patch on the side. He thought, however, that the animal had just been soiled with lying on the pasture.

The bullock was eating and doing as well as any of his mates. No one had any idea what had caused the wound, but a bullock with long horns belonging to a neighbour in the adjoining field was blamed for it. I can hardly think that the horn of another animal could have penetrated such a distance and entered the rumen. The outside wound was small and showed no ragged edges. It looked too far forward to catch the rumen.

I was afraid of food escaping into the thoracic cavity, but at no time has the bullock shown any chest trouble. The only treatment recommended was fairly constant washing and disinfectants, but I am afraid he will have had very little even of that for the last month or two. I suppose some practitioners would have operated in this case and made an attempt to suture the wound in the rumen. Perhaps this might have been the correct procedure, but even though the bullock is a small one the wound looks a long way forward and difficult to get at from an opening in the abdomen. Another reason that has made me loth to interfere is that the bullock has always looked so well and has grown and summered as well as any other animal on the farm. Of course, what is going to be the finish of him I do not know.

Abstracts

[Is Powdered Glass "Poisonous" to Animals?
Thomas, A. D., and Brown, M. H. V. (1933). *Jl. S.A.V.M.A.*, *4*, 3, pp. 149-153. Two tables.]

Three experiments were undertaken for the purpose either of giving some scientific substance to, or of disproving the accuracy of, the belief, extremely widespread in South Africa, that powdered or broken glass administered in the food to dogs produces severe symptoms and certain death, and that this is one of the methods of choice employed by natives and even Europeans for maliciously destroying dogs and other animals. The meagre literature of the subject (quoted) affords no affirmative evidence of injury.

In the experiments described an attempt was made to follow the course of the ingested glass through the alimentary tract by checking the amount of glass passed out with the fæces.

In all the experiments the method of dosing the dogs was, after a preliminary baiting with untouched pieces of meat, to follow with rolled slices enclosing powdered or broken glass.

In the first experiment three dogs were dosed with glass powdered to various degrees of fineness; in the second the process was repeated with four other dogs, with the substitution, in two instances, of "coarse" and "very coarse" grades of glass particles, and in the third experiment two further dogs were subjected to dosage with "very coarse" particles and radiographs were taken at various times after dosage with a view to ascertaining the actual distribution of the glass particles in the gastro-intestinal tract.

In the result, the conclusion was arrived at that, contrary to popular belief, glass, powdered or broken to particles varying in size from fine to very coarse, does not cause death when ingested by dogs. The whole or by far the greater proportion of the glass given passed through the alimentary tract (when defæcation was normal) in the course of 96 hours, without causing any ill-effects. It is, of course, conceivable that sharp, jagged pieces of glass larger than the maximum here given (17 mm.) may cause more or less severe traumatic laceration or even perforation of the œsophagus or possibly of the stomach and intestines, but it must be remembered that no dog will normally swallow free pieces of glass, and a dog would have to be very hungry indeed unwittingly to swallow with meat pieces of glass sufficiently large to injure the alimentary tract.

A useful incidental finding was that glass foreign bodies in the gastro-intestinal tract could be demonstrated with great ease by means of X-ray photography.

W. B.

[**Observations on Dental Affections in Dogs.** (Trans. title.) Dechambre, E. *Bull. de l'Acad. Vét. de France,* vi, 7, 314-318.]

An account is given of three cases representing different types of dental affections in dogs. Mention is first made of the common occurrence of deposits of tartar on the teeth and the frequently-accompanying gingivitis. The fœtid pyorrhœa so produced is considered as the starting point of many intestinal and even general infections, for besides the difficulty of mastication the continual ingestion of pus and toxins must infect the alimentary tract.

Caries or dental decay is, however, quite different, and is more or less exceptional in the dog. A black round spot or a hemispherical cavity is usually found on the table of the tooth, generally at the bottom of a ridge of enamel. In the case recorded a two-year-old cocker spaniel showed caries of two upper molars, one of which was very sensitive to percussion and it was extracted. The other tooth, which was only slightly affected, was left. Two years later the dog was again seen on account of a painful swelling on the right side of the face. The right upper molar now showed a large cavity. The tooth was extracted and the dog made an uneventful recovery.

In a second case of a similar type a dog showed a fistula leading from a lower molar tooth.

Necrosis of the Mandible.—The subject of this case was a three-year-old spaniel. The gum on one side was separated from the first to the last lower molar teeth; the pocket so formed extended nearly down to the lower border of the mandible. Extraction of the two molars was attempted at first unsuccessfully, and the gouge had to be used. Even after the external surface of the two teeth had been fully exposed it was impossible to move them as they were so firmly fixed on their inner face to the mandible. After breaking them it was possible for extraction to be completed. The surface of the mandible was then curetted, only the external surface of the bone being diseased. The dog's health improved, but by mischance it obtained a bone and fractured the mandible: this was set and healed uneventfully.

Atrophy of the Tooth Roots.—This condition was found in the skull of a four-year-old dog while it was being macerated as an anatomical specimen. The teeth became detached and an almost complete atrophy of their roots was noted; this was especially noticeable in the canines and premolars. The crowns were normal except that some premolars appeared dull and a little yellowish. No cause could be found, but it is suggested that a severe infection during youth may have affected the general health and arrested the development of the roots of the second teeth. J. S.

[**Auricular Chondrotomy in the Dog.** (Trans. title.) Mallet. (1933). *Recueil de Méd. Vét. de l'Ecole d'Alfort,* cix, No. 9, 544-545.]

The author refers to the article by Girard and Masseron in the same journal last May, and to an unpublished communication of his own to the Académie Véterinaire in October, 1930. In the latter he mentions the following advances in technique of the operation, based on two facts:—

(1) The skin on the external surface of the ear is covered with hairs and non-adherent to the underlying cartilage, and operative interference from this side may cause reverse abnormal signs.

(2) The internal surface is hairless, thin and adherent, and therefore a scar here would not be so apparent.

Technique.

(*a*) With a pointed bistoury make an incision of less than 1 cm. in length across the middle of the normal line of the fold of ear on the internal surface, and through skin and cartilage.

(*b*) Insert the instrument between external skin and cartilage towards one edge of the ear.

(*c*) Make a quarter turn of the instrument so that the edge contacts with cartilage, and section carefully through the latter, following the depth of the incision with the ball of the thumb of the left hand to avoid going through the internal skin.

(*d*) Repeat (*b*) and (*c*) in the other direction.

(*e*) When the above is finished, the ear should drop correctly, but it is best to ensure this during cicatrisation. No dressing is required, but half of a lead seal, as used for sacks, is fixed to the point of the ear by a piece of adhesive tape (the author previously advised stitching a milliner's lead button weight to the tip of the ear).

The author claims that dogs do not try to remove these weights either by scratching or by shaking their heads. Also that the operation only takes about five minutes, and that hæmorrhage, suppuration, necrosis and gangrene do not occur.

C. V. W.

* * * * *

[**Diffuse Keratitis and the Actual Cautery.** (Trans. title.) Bouchet, G. and A. *Bull. de l'Acad. Vét. de France,* vi, 6, 237-238.]

After preliminary remarks on the value of cauterisation of corneal ulcers with the red-hot iron, the writers give an account of its use in a case of diffuse keratitis in a dog, the history of which may be of interest. This eight-year-old dog had been placed in a box for "sulfuration" against external parasites. The dog had slipped its collar and got its head into the box and so contracted an intense diffuse keratitis.

The cornea of each eye had the appearance of a hard-boiled egg; the eyelids were œdematous and lachrymation and photophobia were marked. In spite of the usual treatments this diffuse keratitis persisted over four-fifths of the cornea.

The actual cautery was used on one eye, being applied twice with an interval of two months. This was followed by recovery and so the other eye was also submitted to the same treatment with such a satisfactory result that the dog could again be used for sport. For the technique applied, details of which are not given, the writers refer the reader to a paper presented at the veterinary meeting (1933) at Alfort.

J. S.

* * * * *

[**Concerning Proprietary Pharmaceutical Preparations.** (Trans. title.) Chichon. (1933). *Recueil de Méd. Vét. de l'Ecole d'Alfort, 109,* 8, 472-473.]

A law case tried before the High Court of Appeal in Paris is cited in which a veterinary speciality (as opposed to a pharmaceutical preparation which would otherwise be liable to duty because used for human and animal ailments, and advertised as a cure) is not liable to duty. Laws from 1777 onwards are quoted. The case was sent back to the Court of Appeal at Orleans.

C. V. W.

* * * * *

[**Meat Inspection in Ancient Times.** (Trans. title.) Bolnat. (1933). *Recueil de Méd. Vét. de l'Ecole d'Alfort, 109,* 8, 474.]

First mentioned in Roman literature between years 119 and 63 B.C.

In the Roman year 585, C. Titunius, a butcher, was fined for selling non-inspected meat. The fine was used for the erection of a shrine near the Temple of Tellus. (Ext. of Jules Monod: "La Cité Antique de Pompeii," p. 62.)

C. V. W.

ULSTER MINISTRY AND POULTRY DISEASES

"Report has it," says *The North British Agriculturist,* "that the Ministry of Agriculture for Northern Ireland has taken an important step which may have far-reaching consequences in regard to the control of poultry disease in that country. Briefly, it had applied to the provisions of the Diseases of Animals Act, 1894, to poultry, in terms of an Order designated the Poultry Diseases Order (Northern Ireland), 1933, which came into operation on October 9th. Under the Order in question, bacillary white diarrhœa in poultry becomes a notifiable disease, and the most stringent precautions are to be exercised concerning the importation of poultry and eggs for hatching purposes. It will henceforth be illegal to land poultry or eggs for hatching in Northern Ireland without a permit granted by the Ministry."

Reports

CIVIL VETERINARY DEPARTMENT, UNITED PROVINCES, INDIA

ANNUAL REPORT FOR THE YEAR 1932-33

[The Superintendent, Printing and Stationery, United Provinces, Allahabad, Price One Rupee.]

The report was submitted by the late Captain S. G. M. Hickey, who was Director of the Department and whose untimely death in India on August 1st, 1933, is greatly deplored.

Information in regard to the number of officers employed in the Department is vague, but there would appear to be five officers in addition to the Director. Mr. Shahi, M.R.C.V.S., has been appointed to the temporary post of Veterinary Investigation Officer. There were 217 members of the subordinate staff employed at the close of the year, which is five more than in the previous year. There were no stipendiary students under instruction apart from four who are continuing their studies after failing in their examinations.

Disease. — The mortality from epidemic disease was rather less severe than in the previous year, but four cases of glanders were dealt with and eight cases of surra were reported. Preventive inoculation against cattle disease was widely practised and some interesting results are disclosed. Further experiments in the treatment of rinderpest with injections of iodine are reported. There was a satisfactory increase in the number of cases treated at veterinary hospitals and by veterinary assistant surgeons on tour. The large increase in the number of castrations of scrub bulls is creditable to the staff. There was an addition of two to the number of veterinary hospitals, making 171 for the Province.

A large amount of diagnostic work is reported as having been performed at the Headquarters and Circle Laboratories, and an investigation into a chronic infectious disease of goats was initiated. Experimental work for the control of "fascioliasis" in cattle with carbon tetrachloride was continued, with satisfactory results.

Parasitic diseases of poultry received attention and a new species of gongylonema discovered. A new nematode worm, *Chlamydonema* sp., was discovered in the stomach of a dog. This work is being conducted in collaboration with the Helminthologist of the Imperial Institute of Veterinary Research at Muktesar.

Breeding Operations.—There was a further reduction in the number of horse, pony and donkey stallions, but it is noted with pleasure that the progeny of the stallions is showing

continued improvement. The work is handicapped by lack of funds.

General.—Propaganda work was continued, but was limited for financial reasons. With a view to economy, the tours of officers were restricted, which cannot be regarded as satisfactory.

G. K. W.

* * * * *

COUNTY OF DUMFRIES

MEDICAL OFFICER'S REPORT

In the 1931 Annual Report of the Medical Officer for the County of Dumfries the work of the two veterinary officers for the county is summarised. Detailed reports of the work carried out in their respective areas were submitted to the Public Health Committee by the veterinary officers; but it is unfortunate that a very limited space has been allocated to the mention of that work in the Medical Officer's Annual Report.

It is surprising to read in this report: "Now there is practically no part of Dumfriesshire, urban or rural, which has not a supply of tuberculin tested milk available at a cost of only 1d. per quart more than the ordinary product." At the same time, 50 per cent. of tuberculin tested milk produced in Dumfriesshire is being either made into cheese or sent away as ordinary milk.

The number of routine examinations made under the Milk and Dairies Order for the year under review shows an increase from the previous year, making an average of a little over one inspection for each herd registered and unregistered. Premises registered and in process of registration number 1,082.

Under the Tuberculosis Order an increase in the number of cases dealt with is reported, with the unusual *post-mortem* findings: 60 per cent. not advanced and 39·5 per cent. advanced.

Under "Meat Inspection" 50 per cent. of the meat condemned was on account of tuberculosis.

The work of two whole-time veterinary officers under a county council surely deserves a better record of it.

A. S.

THE TREATMENT OF UNDULANT FEVER IN MAN

"General practitioners of veterinary medicine might do well to keep informed regarding progress that is being made in the treatment of undulant fever. Whether it will prove to be rational therapy or not, we do not profess to know, but some attention is being given to what is termed Miller's protein shock therapy in undulant fever. In *The Journal of the A.M.A.* (October 7th, 1933, p. 1193), the statement is made that: 'The result of treatment has been uniformly good, while in three of the patients its effect was dramatic and the illness was brought to an abrupt termination by only one injection. There have been no recurrences.'"—*N. Am. Vet.*

N.V.M.A. Divisional Reports

CENTRAL VETERINARY SOCIETY

SIXTIETH ANNUAL DINNER

An atmosphere of wholehearted good-fellowship was created by the "all-veterinary" nature of the guest list on the occasion of the sixtieth annual dinner of the Central Veterinary Society, which was held at the Mayfair Hotel, Berkeley Street, W.1, on Thursday, November 2nd. There was present a large number of Fellows, guests and lady visitors, who were cordially received by the President, Mr. Cyril P. King and Mrs. King, and a thoroughly enjoyable evening was spent.

Following the honouring of the loyal toast, that of "The Central Veterinary Society" was proposed by Dr. F. Bullock, Secretary and Registrar of the Royal College of Veterinary Surgeons.

Dr. Bullock said that he did not know that the proceedings that night were to be a duet between himself and the President; he had thought that he would be but one of a large number of speakers, but it seemed that it was to be not only a duet but a duel, and that, on account of his age and infirmities, he was to be allowed to have the first shot. (Laughter.)

The main reason for one's pleasure in proposing a toast of that kind was, in his case, because it was coupled with the name of their President, Mr. Cyril Price King. (Cheers.) He knew him and had known him from his student days; he met him mainly at examination times but, in the presence of his mother and father, brothers and uncles, and the rest of the family, he could give the assurance that his behaviour on those most trying occasions was exemplary. (Laughter.) They had now placed him in a still more trying position, and he could assure them from his experience of his past that they would find that he would make an exemplary President. (Hear, hear.) He was confident that they could not have elected a better President. (Cheers.)

In that particular case the toast was of the utmost fitness, for Mr. King, the speaker understood, was born on the Surrey side of the river, where many other good things came from. The Central Veterinary Society itself was born on the other side of the river. He had seen the first notice calling the inaugural meeting of the Society on the fourth of July, 1870, signed by Professor Armatage, and which was addressed from Camberwell. The first President was George Fleming, who was then resident at Woolwich, in Kent.

He could go further and say that their President had an hereditary right to his position, for his grandfather, Salusbury Price, was present at that first meeting, on July 4th, 1870, and he

could not help feeling with what great pride he would have glowed could he then have foreseen that 63 years later his grandson would be President of the Society he was then inaugurating. Cyril Price King came of veterinary forbears from both sides of the family; his father was a veterinary surgeon, as was his mother's father and his great grandfather. While he could not say that his mother was a veterinary surgeon, the ladies all present knew that what Mrs. King did not know about veterinary surgeons was not really worth knowing. (Laughter.)

That was further a very special occasion in that in the appointment of so youthful a President they were making records, for he thought it was the first occasion in English history when the son of a King came to the throne before his father. (Laughter.) He understood that this was not a case of usurpation on the part of the son, or of abdication on the part of his parent, but of renunciation; he was going to express the opinion and the hope that that renunciation was merely temporary and that, at the end of his son's year of office, when he saw how easily and well his son had sat the saddle, he would say "I wish I had been there," and would try it. (Hear, hear.)

There was yet another special reason why he was particularly glad to have the privilege of speaking to them that night and that was because he stood as *locum tenens* of their oldest active member, Mr. Mark Tailby, of Birmingham. (Cheers.) Mr. Mark Tailby especially asked him to attend the dinner of the Society in his name, and had sent him a copy of the diploma which he had received when he was made a member. As it possessed some historic interest, he thought it would bear reading: "The Central Veterinary Society have elected Mr. Mark Tailby a Fellow in recognition of his services in promoting the objects for which this Society was established. In witness whereof this Diploma has been signed and the seal of the Society affixed. George Fleming (President), George Armatage (Secretary), January 4th, 1872."

Proceeding, Dr. Bullock said that Mr. Mark Tailby qualified in 1860 and he still took a lively interest in the proceedings of the Society, of which he became a member twelve years after he qualified.

There remained something still more interesting, and that was that there was living in London a member who was present at the foundation meeting of the Society in July, 1870, namely, Mr. F. H. Ridler, the former partner of Sir Frederick Hobday in Church Street. He qualified in 1864, and was the third oldest member of the profession.

It would be very nice if they would commission Sir Frederick Hobday to convey to him a message of goodwill and congratulations from the Society which he had helped to found. (Applause.)

Would it not have been interesting, added Dr. Bullock, if he (the speaker) could have spoken for Mr. Mark Tailby and told them something of the state of veterinary science and agriculture in the years from 1860 to 1872. In those days the profession numbered some 2,000 only, but there were swarms of unqualified practitioners all over the country; they swarmed like Egyptian locusts and were very much more destructive. (Laughter.) In those years the position of the veterinary profession was very serious. Soon after the Charter of 1844 had been obtained, the Scottish school seceded, and for a quarter-of-a-century the profession was divided. Attempts had been made to obtain a separate Charter for Scotland, and that would have meant an end to unity. Because they could not speak for a united profession the Council of the Royal College of Veterinary Surgeons was absolutely helpless. But a few great men, members of the Council, such as Thomas Greaves, George Fleming and others, knew that something must be done to bring the profession together, and societies such as that were formed during that decade. From then onwards, the Veterinary Societies had, by their continual meetings and discussions, done much to improve the position of veterinary science. There was absolutely no comparison in the outlook which faced them and that which faced Salusbury Price, Mark Tailby and F. H. Ridler in those dark days.

He desired to say to the President that, having seen him firmly seated in the saddle, he wished, and they all wished him, a safe and happy course until he reached the winning post. The Society had been going 63 years and was still going strong. It was sound in wind, eyes and action. The President would soon hear for himself how sound it was in its wind (laughter); as for its eyes, the Secretary was the eyes of a society, and they had been singularly fortunate in their secretaries. Thrice happy was the society that had an enthusiastic and devoted secretary. (Cheers.) The Society was sound in action, as the President himself would confess when, pulling up a little past the winning post some time next summer, he took his rest and realised how smoothly and rapidly and how easily he had been brought to the end of his course.

He coupled that toast with the name of the President, Cyril Price King; might his reign be "happy and glorious." (Loud cheers.)

Replying to the enthusiastically-honoured toast, the President, Mr. Cyril Price King, M.R.C.V.S., said that he rose to thank Dr. Bullock, on behalf of the Society, his wife and himself, for the very kind way in which he had proposed that toast—proposed, if he might say so, in that inimitable, thorough and yet concise way which many years as a veterinary surgeon had taught

not only himself but all of them to associate with him; and he thanked the company for the generous way in which they had received it.

The history and importance of that Society was so well known to all of them already that he thought he might be excused for not enlarging on it, but he should be failing in his duty if he omitted to thank the retiring President, Captain Stow, for the capable and dignified way in which he had steered the ship for the last year. (Hear, hear.) The increased average attendance at the meetings was alone sufficient evidence of his popularity. (Cheers.) Nor must they forget how big a debt of gratitude they, as a Society, owed to their Secretary, Captain J. F. Macdonald and their Treasurer, Dr. McCunn—somehow or other those two gentlemen seemed able to wheedle papers and paper out of members as only Scotsmen could! (Laughter and applause.)

As regarded himself, the only excuse he could offer for being foisted upon them as their President was possibly that the Powers that Be, having cognisance of the rapidly disappearing general practitioner owing to whole-time inspectorates—the diminishing need of veterinary surgeons in horse transport concerns—the diminishing ability of farmers to pay for veterinary services—the increasing intention of a large number of the public to avoid paying for anything, and the increasing number of clinics for the treatment or mal-treatment of the smaller animals by unqualified persons, thought they should at least procure another general practitioner as President before the species became extinct. (Laughter.)

The "Victory" Medal

Proceeding, the President said that he regretted to announce that he was deprived of the privilege of presenting the "Victory" Medal that evening. As they no doubt already knew, their Council, unanimously supported by the Fellows of that Society, had selected Mr. Henry Gray as the recipient, than whom, he need hardly say, he knew of no one better fitted to receive it. (Cheers.)

Unfortunately, Mr. Henry Gray was ill in the West London Hospital; he might say, however, that the medal had already been presented to him in hospital. He felt confident that he had the support of everyone there in asking the Secretary to convey to Mr. Gray their greetings and wishes for his speedy recovery. (Hear, hear.) Qualifying at London in '85, Mr. Gray had always been a pioneer in veterinary science; his knowledge of veterinary literature, his translation of foreign writings, his knowledge of avian diseases, his ever-ready advice and assistance—always willingly given to those who sought it—coupled with a high sense of duty to his profession, and a goodly sense of humour, made him a man whom his profession in general and that Society in particular was proud to count a member. (Cheers.)

The Visitors

He was instructed by their Committee to be as brief as possible, but before finally collapsing into the Presidential chair—(laughter)—he desired to extend a hearty welcome to their many guests that evening, the most distinguished of whom was Sir Arnold Theiler, the honour of whose presence amongst them was, he was sure, greatly appreciated. (Applause.) His invaluable knowledge of, and research into, Colonial diseases were, he felt, too well known to all of them to need any further comment from so humble a person as himself.

They had also with them several members of their sister profession—medicine—who they were always pleased to welcome. (Hear, hear.) They had also representatives of the coal, coke and iron industries, who were interested in horse transport.

He thanked them for their patience and endurance, and he would ask the Fellows of the Society to rise and drink to the health of the visitors, coupled with the name of Sir Arnold Theiler.

Sir Arnold Theiler, in acknowledging the welcome accorded to him and the other guests by the President on behalf of the Society, said that it was a great pleasure to him to be present that night and also to reply, on behalf of the guests, to the kind observations of the President.

The President had seen fit to describe him as a distinguished man, or perhaps rather he should say a distinguished veterinarian. Why he should have been so described he really did not know, for he had done nothing except that, when, in the country in which he lived, he had met with problems that were new, if he found them to be of a veterinary type he had endeavoured to ascertain their nature and the most effective manner of dealing with them—making this knowledge known to the world in order that others might profit from those researches. That was what he had been trying to do all his life. (Hear, hear.)

He was particularly glad to be present that night because he had now made up his mind to become, for the time being at least, a Londoner. (Cheers.) For the greater part of his life he had lived in South Africa, but he was well aware of the activities of that Society. He had read with particular interest the accounts of their proceedings, he had followed their papers and their discussions, and he had seen how active they were in tackling their problems. His pleasure was enhanced by the fact that he had not had the privilege of being present before at one of their annual dinners, although he had been an honorary member for the last 25 years

or so. (Hear, hear.) His friend Sir Frederick Hobday had been kind enough to ensure that he should not be absent on that occasion. (Applause.)

Needless to say, he thoroughly appreciated that opportunity of meeting with them. He was not an Englishman, but he was a Britisher. (Hear, hear.) He was perhaps a unique Britisher, because he became a Britisher by conquest; he was at least, perhaps, the only veterinarian who became so. He was the first, the last, and the only British veterinarian who could claim to have been the servant of the greatest opponent they had had—President Kruger.

Might he finish by thanking them for the welcome they had given him, for the all-too-kind words they had spoken about him, and for the way in which they had welcomed their guests. (Cheers.)

After a brief interval, the company made its way to the excellent dancing floor, where the enjoyment of the evening was continued to a late hour. Great satisfaction was given by Red Smith's Band in the provision of music for the dancing and of incidental items during dinner.

The pleasure of the company was much enhanced during the evening by excellent contributions from Mr. Cyril Shields, entertainer.

* * * * *

VETERINARY MEDICAL ASSOCIATION OF IRELAND*

MEETING AT DUBLIN

A General Meeting of the Veterinary Medical Association of Ireland was held in Wynne's Hotel, Dublin, on Tuesday, August 8th, 1933, with the President (Mr. T. R. Mulcahy) in the chair.

The following additional members were present: Messrs. J. H. Norris, P. F. Dolan, J. E. Fitzgerald, B. Hickey, W. E. McDonald, Miss H. Bissett, Messrs. A. F. O'Dea, J. M. Murphy, J. E. Kenny, M. O'Connor, John Beirne, J. P. Nowlan, J. C. McKittrick, Sean O'Donovan, P. J. Howard, L. M. Magee, John F. Healy, F. S. Ringwood, M. J. MacClancy, Professor J. J. O'Connor (Hon. Secretary). The following visitors were present by invitation: Messrs. J. H. B. Best M.R.C.V.S. (Nigeria), and Robert J. Roe, M.R.C.V.S. (Cyprus).

The minutes of the previous meeting, held on May 3rd, having been circulated, were confirmed and signed.

The minutes of the Provincial Meeting, held on July 15th, in Cork City, were read, confirmed and signed.

Correspondence.—Apologies for absence were announced from Professor J. F. Craig, Professor T. G. Browne, Mr. James Dodd and Mr. P. A. McCorry.

Election of Member.—Mr. William Reidy, Abbey Villa, Kilmallock, Co. Limerick, was unanimously elected to membership on the proposal of Mr. J. D. Whitty, seconded by Professor J. J. O'Connor.

Report of Council

The following report of Council was read:—

A Council Meeting was held on Thursday, July 27th, 1933.

The following matters were discussed:—

(1) Fees for veterinary surgeons officiating at greyhound racing tracks.

It was decided to circularise veterinary surgeons who were officiating at greyhound racing tracks asking them what remuneration they received for their services and their opinion as to what would be a reasonable fee under different circumstances.

(2) Proposed change of title of the National Veterinary Medical Association of Great Britain and Ireland.

It was decided to adopt the same attitude as last year towards this proposed change of title, but that in the event of a change being decided upon a suggested new title would be "The British and Irish Veterinary Association."

(3) Statement of the Association of the County Medical Officers of Health.

A statement which appeared in the public press of May 4th, making a claim to the effect that the checking of outbreaks of disease in cattle was due to the services of the Medical Officers of Health, was considered and it was decided to write to the Hon. Secretary (Dr. Saunders) of that Association asking him kindly to give an explanation of the grounds on which the claim is made.

(4) The grievances of the Veterinary Officers of the Department of Agriculture.

It was decided to ask for a reply to the Hon. Secretary's letter of April 10th, receipt of which was acknowledged on April 11th, 1933.

(5) The next General Meeting.

It was decided to hold the General Meeting on Tuesday, August 8th, the first day of the Horse Show, Mr. MacClancy's paper on "The Inspection of Animals at our Ports before Shipment" having already been arranged for.

Arising out of the report, it was proposed by Mr. Mulcahy, seconded by Mr. Magee and passed unanimously, that this Association is still of the opinion that the name of the National Veterinary Medical Association of Great Britain and Ireland should remain unaltered, but that if a change of title is considered essential, that the new title should be the "British and Irish Veterinary Association."

Paper.—Mr. M. J. MacClancy, M.R.C.V.S., then read his paper entitled "The Inspection of Animals at our Ports before Shipment."

[This paper is reproduced, together with a report of the discussion thereon, earlier in this issue.—Ed., *V.R.*]

On the proposition of the President a hearty vote of thanks was accorded Mr. MacClancy for his valuable paper.

The President, in his general remarks, referred to the report of Council and commented favourably on the items in the report.

J. J. O'Connor, *Hon. Secretary.*

* Received for publication October 27th.

From *The Veterinarian*

November, 1833

To the Editors of "The Veterinarian"

"Hoc opus, hoc studium parvi properimus et ampli."—Horace.

Gentlemen,

The late evident decrease of contributors to your periodical has not only astonished but deeply affected me. That a journal, so ably and liberally conducted as *The Veterinarian* has hitherto been, should be allowed to deteriorate either in the variety or importance of its practical papers, cannot be regarded, either at home or abroad, but as a professional disgrace, and must ultimately be a national loss.

Did you seek any private reputation or sinister advantage, that might be urged as a reason for the diminution of practical communications, but when it is a fact so palpably notorious that your object is the improvement of the profession, the advancement of veterinary science, and "the common weal" of our society, then I say if your brethren do not support you by their contributions, "let *Ichabod* be written on their fronts"—*Sed spero meliora.* They surely never will allow it to be said, that in England, the cradle of liberty, the nurse of science, veterinary practitioners have not the *ability* and the honest pride efficiently to support one journal.

I am, Gentlemen, your obedient servant,

G. W. Allinson.

Idle, Yorkshire, November 2nd, 1833.

In Parliament

Foot-and-Mouth Disease

In the House of Lords, on November 16th, Lord Strachie called attention to the recent outbreak of foot-and-mouth disease in Somerset, and asked the Government whether they intended to stop the importation of anything likely to cause an outbreak of this disease, and moved for papers. He said that 608 animals had to be slaughtered and £6,730 paid in compensation as a result of the outbreak. This sum did not represent the value of these animals to the persons owning them. The origin of the outbreak was unknown. He would like to be satisfied that the infection was not brought from Ireland to the neighbouring port of Bristol. He did not know what became of the bags in which meat from the Argentine was brought to this country. It was possible that they might be used afterwards as containers for foodstuffs and thus convey the disease from the Argentine, which was teeming with it, to farms in this country.

Canada again was absolutely free of foot-and-mouth disease, and if America and Canada could be free the Government should inquire whether it would not be possible to have regulations which would prevent the disease being brought into this country.

Earl De La Warr, replying for the Government, said that 20 days had now elapsed since the last case in Somerset, and it might be assumed that the disease had been successfully eradicated by the Ministry's policy of slaughter, accompanied by restriction of the movement of animals. If no further outbreak occurred it was intended to withdraw the restrictions entirely on November 25th. It was the invariable practice of the Ministry to conduct exhaustive inquiries with a view to ascertaining the origin of each initial outbreak. In two recent cases suspicion had attached to imported meat, though this could not be definitely proved, but in other cases imported meat could not be held to be responsible. Other sources of infection were the importation of live animals which were infected, carcasses and other animal products, feeding stuffs, migrating birds, and the movements of human beings. The Ministry of Agriculture were satisfied from inquiries they had made that there had been no importation of the disease from Ireland. The carriage of infection from the Continent by human beings was possible, but no outbreak had been actually traced to that source. It was extremely difficult—in fact almost impossible—to obtain very conclusive evidence of the manner in which the disease was introduced in any particular case; but every possible step was taken to discover the origin from such evidence as was available. When the number of outbreaks in this country was compared with that in other countries it was seen that there was a tremendous difference in our favour.

Lord Strachie withdrew his motion for papers.

. . . . . .

The following questions and answers have been recorded in the House of Commons recently:—

Horse-Drawn Vehicles

Mr. Doran asked the Minister of Transport if he will introduce legislation restricting the use of horse-drawn vehicles in the main London and provincial thoroughfares?

The Parliamentary Secretary to the Ministry of Transport (Lieut.-Colonel Headlam): Powers already exist for the restriction where necessary of the use of any class of vehicular traffic upon particular roads whether in London or elsewhere.

. . . . . .

Experiments on Living Animals

Mr. Groves asked the Minister of Agriculture what results of value to the community were made in the course of experiments upon living animals performed in 1932 on the instructions of his Department?

Mr. Elliot: Live animals were employed in the diagnosis of obscure cases of foot-and-mouth disease and swine fever and in the diagnosis of anthrax, swine erysipelas, contagious abortion, tuberculosis, rabies (suspected), hæmorrhagic septicæmia of cattle, fowl cholera, fowl plague, fowl typroid, bacillary diarrhœa, fowl pox, salmonella (infection) of ducklings, enterohepatitis of turkeys, and in various obscure diseases of cattle, pigs and poultry. Animals were necessarily used in the preparation of the vaccines against fowl pox and tropical piroplasmosis and anaplasmosis (for the purpose of the export trade in pedigree cattle), for testing these vaccines and those employed to protect animals against tuberculosis (B C G), contagious abortion, fowl typhoid and fowl pox, and for testing the potency of foot-and-mouth disease sera. Experimental inoculations were employed for differentiating foot-and-mouth disease viruses, partly to aid in tracing the connection between field outbreaks and partly to advance the development of practical measures of immunisation. Experimental work with bovine contagious abortion enabled progress to be made in tracing the distribution and persistence of infection in the bovine body, and in working towards the production of suitable dead or attenuated vaccines. Advances were made in our knowledge of the

differentiation of rabies-like diseases and in our knowledge of fowl pox, the B G G vaccine for tuberculosis, Newcastle disease of fowls and salmonella infection of ducks and fowls. Further light was thrown on the relation of worm infestation to the invasion of the body by harmful bacteria, and also on the development in lambs of an immunity to parasitic gastro-enteritis. Progress was made in tracing the life history of syngamus, the gape worm of chicks, and useful results were obtained in the experimental drug treatment of parasitic gastro-enteritis of lambs.

. . . . . .

Musk Rats

Lord Scone asked the Minister of Agriculture the areas in which musk rat colonies are known to exist, and the number of musk rats estimated to be at liberty throughout the country, together with the steps taken during the summer to exterminate them?

The Minister of Agriculture (Mr. Elliot): Musk rats are known to be at large in parts of Shropshire and the counties immediately adjoining, and also in West Sussex and adjacent parts of Surrey and Hampshire. Thirty-six trappers have been employed in searching for and trapping the animals, of which 2,587 have been caught since the passing of the Destructive Imported Animals Act, 1932. During the past six months 295 musk rats have been caught in the Shropshire area and 68 in the West Sussex area. No reliable estimate can be made of the number of musk rats at large in the country.

. . . . . .

Rats

Mr. Liddall asked the Minister of Health if he will cause an inquiry to be made into the dissemination of diseases by rats; and what special measures he is taking in regard to the rat menace in connection with the present slum-clearance campaign?

Sir H. Young: Measures for the prevention of spread of disease by rats are in constant operation by my Department, particularly at ports, and in consultation with health authorities abroad. I do not consider that any special inquiry is necessary. Slum clearance no doubt displaces rats from their homes; and they should be prevented from settling elsewhere if possible, but local authorities are, I am confident, alive to that.

. . . . . .

Dog Licences

Captain Erskine-Bolst asked the Chancellor of the Exchequer if he will take steps to arrange that the issue of dog licences should fall in line with wireless licences, so that permission to keep dogs shall run for twelve months from the date of issue instead of, as now, from January 1st?

Mr. Chamberlain: The dog licence duty in England and Wales is not an Imperial but a local taxation duty. The conditions affecting dog licences and wireless licences are materially different, and I doubt whether my hon. and gallant Friend's proposal would be practicable or desirable, but in any case, I could not consider legislation to give effect to it unless it were supported by the various local authorities concerned.

Captain Erskine-Bolst: Will the right hon. Gentleman consider the advisability of making these licences attach to the animal and not to the person? Is it not the case that in a change of ownership a distinct hardship is very often experienced in a dog already being licensed and a further licence having to be taken out?

Home Produced Bacon (Examination)

Mr. Leonard asked the Minister of Health if he is aware that all meat imported from our Colonies, from Argentina and from Denmark is prepared from animals which are subjected to an *ante-* and *post-mortem* examination by official veterinary inspectors employed by the Ministry of Agriculture of the country of origin; and does he contemplate organising and establishing a similar service to undertake the work of inspection in all bacon factories in this country, in order that the public can be assured that the bacon of home origin is as wholesome as that imported from overseas?

Mr. Shakespeare: My right hon. Friend understands that the facts are as stated in the first part of the question. In this country the responsibility for the inspection of meat rests with the local authorities, and, as at present advised, my right hon. Friend sees no reason for instituting a national system of inspection.

. . . . . .

Dairy By-products (Regulations).

Mr. Leonard asked the Minister of Agriculture if he is aware that the Danish Ministry of Agriculture issued in 1885 an order making it compulsory that the temperature of all creamery by-products be raised to 176° F. before being returned from the butter factory to the farm; and whether, as this order has been the means of reducing the incidence of disease among the pig population of Denmark, he will issue a similar order so that immediate measures can be enforced to prevent the spread of disease from the bovine to the porcine species?

Mr. Elliot: I am aware of the Danish regulations requiring dairy by-products to be treated by heat before being sent to farms to be fed to animals. In this country the number of factories from which by-products are returned to farms is insignificant, and I think that little or no advantage would therefore be gained by the promulgation of similar regulations.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

* * * * *

DIARY OF EVENTS

Nov. 27th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Dec. 2nd.—Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

Aug. 13th-18th, 1934.—Twelfth International Veterinary Congress, New York.

* * * * *

NATIONAL VETERINARY MEDICAL ASSOCIATION

Edinburgh Congress, 1934.

July 30th-August 3rd.

The Provisional Committee for the Association's Congress at Edinburgh next year met at the Royal (Dick) Veterinary College on November 17th.

Mr. W. Nairn (President of the N.V.M.A.) was elected Chairman; Mr. J. N. Ritchie, Local Hon. Secretary; and Mr. W. S. Gordon, Assistant Local Hon. Secretary.

An Executive Committee was formed from local members to make enquiries and arrangements, and a rough programme for their guidance was drawn up by the Provisional Committee. July 30th-August 3rd was agreed upon as the provisional period of Congress.

* * * * *

PERSONAL

Marriage.—White-Lloyd. At Purley Congregational Church, on November 11th, Ronald Stewart White, M.R.C.V.S., son of Mr. James H. White, M.R.C.V.S., and Mrs. White, of Sefton Park, Liverpool, to Margaret Elizabeth Lloyd, daughter of Mr. Robert D. Lloyd and Mrs. Lloyd, of Purley Rise, Purley.

The Rev. R. K. Spedding, of Luton, conducted the service.

Mr. Douglas Hutchison, of Liverpool, was best man.

. . . . .

Invalids.—The profession will be relieved to learn that Mr. Henry Gray was operated upon with complete success at the West London Hospital, on Thursday last. The operation was a severe one, but Mr. Gray stood it well, and, although he is not yet quite out of danger, there is every prospect of a complete recovery.

We regret to learn from Mrs. Philip Vincent, of Lansdowne Place, Hove, that her husband's condition, which we reported on October 14th as being serious, remains unchanged.

. . . . .

Appointment.—Captain Frederick William Medlock, M.R.C.V.S., Chief Veterinary Officer for Surrey, has been appointed to a similar position under the Essex County Council. Captain Medlock commenced his career as a veterinary officer with the Dumfries County Council in 1913, remaining in that capacity (exclusive of War service) until, in 1927, he secured the Surrey appointment. Under Captain Medlock, Surrey was the first County Council in England to institute the quarterly veterinary inspection of dairy herds by whole-time veterinary officers.

* * * * *

R.C.V.S. OBITUARY

Metcalfe, George, "Nuthurst," Myton Road, Warwick. Graduated Edinburgh, April 17th, 1872; died November 15th, 1933, aged 97 years.

Williams, Evan Wynne. The Den, Barmouth, Merionethshire. Graduated London, April 1st, 1881; died November 18th, 1933, aged 75 years.

* * * * *

ARMY VETERINARY SERVICE

London Gazette—War Office—Territorial Army Reserve of Officers

November 21st.—Captain O. V. Gunning, from Active List, to be Captain (November 22nd).

* * * * *

WHOLE-TIME VETERINARY SERVICE FOR STAFFS

The establishment of a whole-time veterinary service in Staffordshire, recommended by the Public Health Committee as the most satisfactory method of ensuring a satisfactory milk supply throughout the county, was decided on by Staffordshire County Council at its meeting at Stafford on November 11th.

The General Purposes Committee reported having considered a report of the Special Joint Committee with regard to tuberculous milk, and recommending the establishment of a whole-time veterinary service for carrying out inspection of herds under the Milk and Dairies Order, 1915, and the Tuberculosis Order, 1925, and the appointment by the County Council of one Chief Veterinary Officer and six Assistant Veterinary Inspectors, and the recommendations of the Public Health and County Agricultural Committees approving such appointments.

The General Purposes Committee recommended the Council to approve these appointments, and the Finance Committee recommended payment of a salary of £700, rising by annual increments of £25 to £850 per annum, to a Chief Veterinary Officer when appointed, and also salaries of £400 rising by annual increments of £25 to £500 per annum, to each of six Assistant Veterinary Inspectors. The Finance Committee also recommended the Council to approve the estimate of an additional £3,000 per annum for carrying out the Veterinary service under the Milk and Dairies and Tuberculosis Orders.

The reference back of the recommendation of the General Purposes Committee was moved by Mr. R. E. Joules, who said he was concerned in the matter from the point of view of the ratepayer and the milk consumer. There was, he said, a craze for spending money, but the object for which the money was to be spent was not always attained. The rejection of cows would place a great expense on the farmer, who would pass it on to the consumer eventually.

Supporting the committee's recommendation, Mr. E. Rigby said their concern ought to be not the cost, but the effect on the young life of the county. He thought the general feeling was that people were quite prepared to pay a reasonable price provided they were getting a good article.

Dr. E. Mackenzie said the only method of dealing satisfactorily with the question was by bacteriological methods. He knew that pasteurisation or sterilisation did affect the nutritive value of milk, but that could be remedied by the addition of small quantities of orange juice to the diet. It would be far better if they could eliminate tubercle from the milk, but that could not be done. If the method proposed was sound they would require not seven, but 20 veterinary inspectors to inspect the herds of the whole county.

Sir Joseph Lamb, M.P., deplored a long discussion on the matter, saying the statements made might create a prejudice in the minds of the public. People would undoubtedly be the better for a greater consumption of milk even of the present quality.

The Chairman said he had at first been against the appointment of these officers, but he was now in favour if it.

The reference back was lost by 17 votes to 42, and the recommendations were carried.

* * * * *

DUBLIN COLLEGE PRIZE-WINNERS

At the Veterinary College of Ireland, Ballsbridge, Dublin, last week, the Principal (Professor J. F. Craig, M.A., M.R.C.V.S.) announced the awards for the season 1932-33, and presented medals and awards to:—

Class A.

Bursary (entitling successful student to free tuition in his second year)—J. T. Barry, Hightown, Rathcormack, Fermoy.

Chemistry.—Silver Medal.—J. T. Barry.
Chemistry.—Bronze Medal—P. Hayes, Lisowen, Doone.
Practical Chemistry.—Bronze Medal—M. J. O'Reilly, Dromara, Co. Down.
Biology.—Bronze Medal—P. Hayes.
Animal Husbandry.—Silver Medal—J. C. Brady, Blackwater House, Ceanannus Mor.

Class B.

Senior Anatomy.—Silver Medal—J. J. O'Hagan, Glenboy House, Manorhamilton.
Senior Anatomy.—Bronze Medal.—E. J. Byrne, Knockgraffon, Cahir.
Physiology.—Silver Medal—H. N. Spears, 2, Wellington Road, Ballsbridge, Dublin.
Physiology.—Bronze Medal—J. J. O'Hagan.
Histology.—Bronze Medal—J. J. O'Hagan.
Stable Management.—Silver Medal—M. J. Byrne.
Stable Management.—Bronze Medal—W. Joyce, Ballyogan, Graigue, Kilkenny, and K. O'Sullivan, Ballybeg, Farranfore, Co. Kerry (tied).

Class C.

Pathology.—Silver Medal—J. D. O'Connor, 116, Morehampton Road, Dublin.
Pathology.—Bronze Medal—C. R. Magnier, Duntabeen House, Fermoy.
Hygiene and Dietetics.—Bronze Medal—Miss D. Taylor, Highthorne, Mounttown Road, Dun Laoghaire.
Pathology.—Mettam Memorial Medal—J. R. Sheehy, Shannon Grove, Pallaskenry.

Class D.

Veterinary Medicine.—Bronze Medal—A. D. Seton, The Hermitage, Hollycross, Thurles.
Veterinary Surgery.—Silver Medal—A. D. Seton.
Veterinary Surgery.—Bronze Medal—J. S. Sweeney, Ahascragh, Ballinasloe.
Meat Inspection.—Bronze Medal—J. S. Sweeney.
Obstetrics.—Bronze Medal—J. S. Sweeney.
Clinique.—Silver Medal.—M. T. C. Byrne, Park House, Tullow.

* * * * *

NO APPLICANTS FOR IRISH VETERINARY VACANCIES

At a recent meeting of the Cork Board of Health, the Medical Officer of Health reported regarding the absence of candidates for vacancies as veterinary surgeons at Schull, Kinsale and Castletown, that he had discussed the matter with the President of the Munster Veterinary Association, and it was stated that the reason for the deadlock was the inadequate salary attaching to the posts.

A motion that the salary be increased was not acceptable to the meeting and no action was taken.

* * * * *

IMPERIAL CANCER RESEARCH FUND

The Duke of Bedford presided at a meeting of the general committee of the Imperial Cancer Research Fund, held in London, on Friday of last week, when the annual report was considered.

The report included a statement by Dr. J. A. Murray, the Director, in which he surveyed the work of the laboratory during the past year on the action of radium, on the behaviour of normal and malignant cells in tissue culture, and on tar carcinogenesis.

Dr. Murray's report, dealing with investigations carried out by Mr. Crabtree and Dr. Cramer, says that they first dealt with the effects of various inhibitors of metabolism on the vital processes and viability of cancer cells, and an application of the facts elicited to the analysis of the sensitiveness of cancer cells to radium. "The results of the investigation," the report adds, "are of great interest and reveal an unsuspected complexity in the phenomenon of radio-sensitivity."

It was found that transplantability and growth were not affected even by exposure to a concentration of hydrocyanic acid for an hour: "the complete reversibility of the action of a substance which is usualy regarded as being a strong cell poison is a very remarkable phenomenon, and contrasts with the action of ido-acetic acid and sodium fluoride." It is clear, the report comments, that ido-acetic acid and sodium fluoride have a definitely toxic action on the living cell which has not been taken sufficiently into account in previous work.

* * * * *

REGULATIONS FOR BUTCHERS' SHOPS

The Recorder of Birmingham (Mr. E. W. Cave) on Monday reserved his decision on a number of appeals by butchers. Twenty-one butchers in the city were accused at the police court under the Public Health (Meat) Regulations, 1924, "of causing meat to be placed so as to allow mud, filth, or other contaminating substance to be splashed or blown thereon." Six of them were fined and the other cases were adjourned, pending appeal.

At the Sessions some of the appeals were heard.

The Recorder asked Mr. Coley, who represented the Corporation, whether it was his contention that even if a door was kept open that would mean a contravention of the regulations. If so, butchers' shops must neither have an open door nor an open window. Without a door how were customers to enter? Were butchers' shops to be hermetically-sealed glass cases? Was he asked to accept that as a reading of the regulation?

"The regulation," he added, "must have some meaning which does not infer that the Minister of Health is a congenital idiot. Is you mean what you say, you are inviting me to say that he is one."

The Recorder will hear other appeals.

* * * * *

CANADIAN AND IRISH CATTLE FOR THE PORT OF LONDON

Mr. John Ames, presiding at a luncheon at the Holborn Restaurant, on Tuesday, stated that London Cattle Mart, Limited, of Mark Lane, whom he represented, had obtained from the Port of London Authority a long lease of West Branch Dock, Tilbury, which was being equipped with lairages and other buildings for the reception and accommodation of a total of 3,000 head of cattle from Canada and Ireland. Here the cattle would be kept until required for the London or any other market.

Though London was the greatest consuming market in the world, it was remarkable that it should have had no live imported cattle market since the closing of the Deptford Cattle Market in 1910. That market dealt with 8,000 head of cattle a week, as well as sheep and pigs, and since it was closed London had had to depend for its supplies of fresh beef on home-fed cattle and on imported supplies landed at Birkenhead and Glasgow.

Facilities for the reception and dispatch of cattle at Tilbury were to be based on the experience obtained at other landing ports in the United Kingdom, and every consideration would be given to the humane handling of the animals. The cattle, which would be landed at any time without waiting for tides, would be discharged immediately into their pens, where they would remain undisturbed for 24 hours or more, being fed and watered three times a day and inspected by the Ministry of Agriculture's veterinary surgeon.

* * * * *

Erratum.—It is regretted that in our announcement, on November 11th, of the appointment of Mr. E. G. Prentice, M.R.C.V.S., as Veterinary Officer, Nigeria, the statement was made that he graduated at Glasgow in July last. Mr. Prentice graduated from the Royal (Dick) Veterinary College.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

* * * * *

THE SIGNIFICANCE OF "GRUNTING" IN HORSES

To the Editor of The Veterinary Record.

Sir,—I was interested in the discussion on the Congress Paper, "Diseases and Accidents referable to the Hunting Field and to the Turf," and though the vexed question of "grunting" was raised by Captain Brayley Reynolds, I noticed that most of those who contributed to the discussion failed to "take this fence."

Why cannot this question of the soundness, or otherwise, of a "grunter" be settled once and for all? At all events, in order to open the discussion I intend to put forward my views. In the first place, we must ask ourselves "what constitutes an unsoundness in a horse?" and I take this to be "anything likely to interfere with the animal's usefulness." Next we come to "grunting." This is a noise made by a horse, when threatened, or sometimes in jumping a fence. It is due to an animal not having sufficient control over its nervous system, and is probably the result of degeneration of some of the nerves controlling the muscles of the larynx. In view of this, I am of the opinion that such a horse will, in course of time—days, weeks or years—develop into a whistler or a roarer, and that, consequently, a "grunter" should never be given a certificate as "sound."

Yours faithfully,

George Hobson, M.R.C.V.S.

15, South Parade,
Waterford.

November 20th, 1933.

* * * * *

A FEW THOUGHTS ON THE MILK QUESTION

To the Editor of The Veterinary Record

Sir,—To open the ground on this matter, as it seems to be being cultivated in too narrow a groove, I should like to make a few observations, as follows:—

1.—There is a risk of death at all periods of life. Is the risk from tuberculous milk any greater than that from scarlet fever, measles, croup, whooping cough and summer diarrhœa?

2.—If the fatal risk is no greater than in these maladies—and science is doing all it knows to arrest the incidence and progress of these human ailments—are any better results being produced than in the case of human tuberculosis of bovine origin? If not, why such a preponderance of scare headlines solely about milk?

3.—It is stated in a widely circulated pamphlet called "The Nation's Milk Supply," that "it has proved impossible to enforce the Milk and Dairies Order in rural areas." If this is so, and we know of no universal attempt to enforce it, is there any more likelihood of an attempt to enforce the compulsory pasteurisation of all milk being any more successful? If the *constructive* plans of the pasteurisers were placed on the table one might be able to judge of their value and chance of success.

4.—The point of veterinary supervision of the milk supply at its source is not sufficiently upheld, and stressed, by would-be reformers, who are constantly asserting an almost age-old fact as if it was new, *viz.*, "The commercial pasteurisation of dirty milk cannot make bad milk good." I do not like the word "commercial" in connection with pasteurisation, it has such a lot to answer for.

5.—How can anybody truthfully state that the periodical and regular (*and suitably frequent*) examination of dairy cattle by veterinarians will not reduce the incidence of tuberculosis in young children? It has never been widely or universally tried yet. Nobody can truthfully assert that it will do away with the malady altogether, the human factor being what it is, but the elimination of tuberculous cows at the source must have a salutary effect.

6.—How is it that the County of Lancashire death rate from tuberculosis for last year was the lowest on record, and that "*The most striking decline in non-pulmonary tuberculosis occurred in the age group 0 to 5 years*"? To what has this been due—better human stock, better milk or better housing and food?

7.—I think that, as a profession, we often get a bad press, and as a result, our point of view in regard to a better milk supply for the nation does not secure sufficient support and prominence.

Yours truly,

G. Mayall.

Bolton.

* * * * *

"THE ART AND SCIENCE OF MINDING ONE'S OWN BUSINESS"

To the Editor of The Veterinary Record.

Sir,—I regret that Mr. Locke should have found it difficult to follow the gist of my last letter, but perhaps it can be made clearer by asserting that the veterinary profession must be as paramount where the animal is concerned, as the medical profession is where man is concerned. In no other way is it possible to avoid friction, and to enjoy that collaboration which must prove of mutual benefit. It is, however, apparent that the trend of present events shows that the medical profession wishes to supervise and dictate in a sphere which is purely a veterinary one. The relations between myself and the medical authorities in this district have always been of the most cordial nature; but I am aware that this experience is not universal, and that the value of the

veterinary surgeon in matters of public health has been bitterly attacked. It is not so much a question of "indignity" by acting under the supervision and control of a County Medical Officer, as one of principle, and I should like to know how many medical men act under the supervision and control of a County Veterinary Officer.

The medical profession are quite within their rights in stepping into the milk question when milk is distributed for human consumption; but until then, as in meat inspection, the matter is a purely veterinary one. My reference to their leading a scare about milk was based practically exclusively on the exaggerated risk of undulant fever in the human subject, from drinking milk from cows infected with contagious abortion, and condemning the veterinary profession for using a living vaccine for protective purposes. I have had two cases of undulant fever reported to me during the last few years, and in both cases it was possible to exclude milk infection, as the source of supply was known, and by blood testing the herds were found to be free of infection; but the victims did eat pork, and I think it is agreed that the porcine strain is more virulent to man than is the bovine. The human subject, like the bovine, probably does, in some instances, have agglutinins in the blood, and if the danger from the bovine source is as great as alleged, it is remarkable that the majority of the human race does not react, or become extinct!

I thought that Mr. Locke would rise to the bait of pasteurisation. Nobody will deny that pasteurisation—and one might add, boiling—is necessary for some sources of supply. If it is not possible without either of these extremes to guarantee a clean raw milk supply, then the routine veterinary inspection of cattle, tuberculin testing, and issuing of clean milk certificates can be regarded as farcical, and scrapped. Pasteurised milk is being "boosted" by dealers in this district as superior to milk produced from Grade A (T.T.) herds, with clean milk certificates, under the most modern hygienic conditions.

A clean raw milk supply can be guaranteed, if the recommendations put forward by the National, in reply to the Grigg Commission, are carried out.

The cancer problem, no doubt, as Mr. Locke states, "concerns animals as well as humans," but by no stretch of imagination can it be viewed as such a scourge. That the problem is a bio-chemical one has been held by me for some time, and communicated to enthusiastic members of the medical profession sharing these views, and who have long since relegated the "germ theory" to the dust heap along with the theory of "embryonic rests." It was referred to as being a far more pressing problem of a medical nature than undulant fever conveyed to man by cows naturally or artificially infected with abortion.

Yours faithfully,
J. F. D. Tutt, F.R.C.V.S.

1, St. Cross Road,
Winchester.

November 19th, 1933.

The Editor acknowledges, with thanks, the receipt of the following:—

Communications from Mr. Ll. E. W. Bevan (Crowborough), Major-General Sir John Moore (London), Colonel G. K. Walker (Abingdon).

Report of a meeting of the Lancashire Division, N.V.M.A, from Mr. A. L. Mullen, Hon. Secretary.

ADVERTISER'S ANNOUNCEMENT

In your advertisement columns the attention of your readers is drawn, week by week, to the invaluable and reliable Parturition Overalls and other protective Coats produced by Ernest Draper and Co., Ltd., at their "All British Works," Northampton. The firm have now prepared an illustrated leaflet fully descriptive of these overalls and suits, and invite practitioners to write for the leaflet to the address given in the advertisement.

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic§ Mange.		Sheep Scab.	Swine Fever.	
	Out-breaks con-firmed.	Animals attacked.	Out-breaks con-firmed.	Animals slaugh-tered as diseased or ex-posed to infection.	Out-breaks reported by the Local Authori-ties.	Animals attacked.	Out-breaks con-firmed.	Out-breaks con-firmed.	Swine slaugh-tered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th Nov., 1933	18	30	—	—	4	11	47	64	58
Corresponding period in									
1932	14	14	2	184	1	1	30	36	17
1931	14	18	—	—	3	4	10	97	48
1930	20	30	1	7	3	4	27	126	63
Total 1st January to 15th November, 1933	257	303	87	7,806	120	204	350	1,241	800
Corresponding period in									
1932	292	358	15	1,282	112	173	234	1,423	693
1931	409	458	97	10,649	127	225	243	1,723	736
1930	319	360	8	306	184	278	361	2,145	962

Note.—The figures for the current year are approximate only. § Excluding outbreaks in Army Horses.